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THE OLD HUMANITIES AND THE NEW SCIENCE.

THE PRESIDENTIAL ADDRESS DELIVERED BEFORE THE CLASSICAL ASSOCIATION AT OXFORD, MAY, 1919,

BY

SIR WILLIAM OSLER, BT., M.D., F.R.S.,

REGIUS PROFESSOR OF MEDICINE, OXFORD.

I.

EARLY in the sixteenth century a literary joke sent inextinguishable laughter through the learned circles of Europe. The *Epistolae Obscurorum Virorum* is great literature, to which I refer for two reasons—its standard is an exact gauge of my scholarship, and had *Magister Nostrandus Ortuinus Gratius* of Cologne, to whom most of the letters are addressed, been asked to join that wicked Erfurt Circle, he could not have been more surprised than I was to receive a gracious invitation to preside over this gathering of British scholars. I felt to have been sailing under false colours to have ever, by pen or tongue, suggested the possession of even the traditional small Latin and less Greek. Relieved by the assurance that in alternate years the qualification of your President was an interest in education and literature, I gladly accepted, not, however, without such anticipatory qualms as afflict an amateur at the thought of addressing a body of experts. Not an educated man in the Oxford sense, yet faint memories of the classics linger—the result of ten years of such study as lads of my generation pursued, memories best expressed in Tom Hood's lines:

> The weary tasks I used to con!
> The hopeless leaves I wept upon!
> Most fruitless leaves to me!

In a life of teaching and practice, a mere picker-up of learning's crumbs is made to realize the value of the humanities in science not less than in general culture.

To have a Professor of Medicine in this Chair gives to the Oxford meeting an appropriate renaissance—shall we say mediaeval?—flavour, and one may be pardoned the regret that the meeting is not being held in May, 1519, to have had the pleasure of listening to an address from a real Oxford scholar-physician, an early teacher of Greek in this University, and the founder of the Royal College of Physicians, whose *Rudimenta Grammatices* and *de Emendata Structura Latini Sermonis* upheld for a generation, on the Continent at least, the reputation of English scholarship. These noble walls, themselves an audience—indeed, most appreciative of audiences—have storied memories of Linacre's voice, and the basis of the keen judgement of Erasmus may have been formed by intercourse with him in this very school. In those happy days, to know Hippocrates and Galen was to know disease and to be qualified to practise; and my profession looks back in grateful admiration to such great medical humanists as Linacre and Caius and Rabelais. Nor can I claim to speak for pure science, some salt of which remains from early association, and from a lifelong attempt to correlate with art a science which makes medicine, I was going to say the only—but it is more civil to say the most—progressive of the learned professions.

To have lived right through an epoch matched only by two in the story of the race, to have shared in its long struggle, to have witnessed its final victory (and in my own case, to be left, I trust, with wit enough to realize its significance)—to have done this has been a wonderful privilege. To have outgrown age-old theories of man and of nature, to have seen west separated from east in the tangled skein of human thought, to have lived in a world re-making—these are among the thrills and triumphs of the Victorian of my generation. To a childhood and youth came echoes of the controversy that Aristarchus began, Copernicus continued, and Darwin ended, that put the microcosm into line with the macrocosm, and for the golden age of Eden substituted the *tellus dura* of Lucretius. Think of the Cimmerian darkness out of which our generation has, at any rate, blazed a path! Picture the mental state of a community which could produce *Omphalos—an attempt to untie the geological knot!** I heard warm clerical discussions on its main thesis, that the fossils were put into the earth's strata to test man's faith in the Mosaic account of the creation, and our Professor of Natural Theology lectured seriously upon it! The intellectual unrest of those days wrapped many in that "divyne cloude of unknowynge," by which happy phrase Brother Herp designates mediaeval mysticism; and not a bad thing for a young man to live through, as sufficient infection usually remains to enable him to understand, if not to sympathize with, mental states alien or even hostile.

An Age of Force followed the final subjugation of Nature. The dynamo replaced the steam engine, radiant energy revealed the hidden secrets of matter, to the conquest of the earth was added the control of the air and the mastery of the deep. Nor was it only an age of Force. Never before had man done so much for his brother, the victory over the powers of Nature meant also glorious victories of peace; pestilences were checked, the cry of the poor became articulate, and to help the life of the submerged half became the sacred duty of the other. How full we were of the pride of life! In 1910 at Edinburgh I ended an address on *Man's Redemption of Man* with the well-known lines of Shelley beginning "Happiness and Science dawn though late upon the earth." And now! having survived the greatest war in history, and a great victory, with the wreckage of mediaeval autonomy to clear up, our fears are lest we may fail to control the fretful forces of Caliban, and our hopes are to rebuild Jerusalem in this green and pleasant land.

Never before in its long evolution has the race realized its full capacity. Our fathers have told us, and we ourselves have known, of glorious sacrifices; but the past four years have exhausted in every direction the possibilities of human effort. And, as usual, among the nations the chief burden has fallen on that weary Titan, the Motherland,

> Bearing on shoulders immense,
> Atalantean, the load
> Wellnigh not to be borne
> Of the too vast orb of her fate.

Not alone did she furnish the sinews of war, but she developed a spirit that made defeat impossible.

No wonder war has advocates, to plead the heroic clash of ideals, the purging of a nation's dross in the fire of suffering and sacrifice, and the welding in one great purpose of a scattered people. Even Montaigne, sanest of men, called it "the greatest and most magnificent of human actions"; and the glamours of its pride, pomp, and

* By the well known naturalist, Philip Henry Gosse.

circumstance still captivate. But there are other sides which we should face without shrinking. Why dwell on the horrors such as we doctors and nurses have had to see? Enough to say that war blasts the soul, and in this great conflict the finer sense of humanity has been shocked to paralysis by the helplessness of our civilization and the futility of our religion to stem a wave of primitive barbarism. Black as are the written and unwritten pages of history, the concentrated and prolonged martyrdom surpasses anything man has yet had to endure. What a shock to the proud and mealy-mouthed Victorian who had begun to trust that Love was creation's final law, forgetting that Egypt and Babylon are our contemporaries and of yesterday in comparison with the hundreds of thousands of years since the cave-dwellers left their records on walls and bones. In the mystic shadow of the Golden Bough, and swayed by the emotions of our savage ancestors, we stand aghast at the revelation of the depth and ferocity of primal passions which reveal the unchangeableness of human nature.

When the wild beast of Plato's dream becomes a waking reality, and a herd-emotion of hate sweeps a nation off its feet, the desolation that follows is wider than that in France and Belgium, wider even than the desolation of grief, and something worse—the hardened heart, the lie in the soul—so graphically described in Book II of the *Republic*—that forces us to do accursed things, and even to defend them! I refer to it because, as professors, we have been accused of sinning against the light. Of course we have. Over us, too, the wave swept, but I protest against the selection of us for special blame. The other day, in an address on "The Comradeship of Letters" at Turin, President Wilson is reported to have said: "It is one of the great griefs of this war that the universities of the Central Empires used the thoughts of science to destroy mankind; it is the duty of the universities of these states to redeem science from this disgrace, and to show that the pulse of humanity beats in the classroom, and that there are sought out not the secrets of death but the secrets of life." A pious and worthy wish! but once in war a nation mobilizes every energy, and to say that science has been prostituted in discovering means of butchery is to misunderstand the situation. Slaughter, wholesale and unrestricted, is what is sought, and to accomplish this the discoveries of the sainted Faraday and of the gentle Dalton are utilized to the full, and to their several nations scientific men render this service freely, if not gladly. That the mental attitude engendered by science is apt to lead to a gross materialism is a vulgar error! Scientific men, in mufti or in uniform, are not more brutal than their fellows, and the utilization of their discoveries in warfare should not be a greater reproach to them than is our joyous acceptance of their success.

What a change of heart after the appalling experience of the first gassing in 1915! Nothing more piteously horrible than the sufferings of the victims has ever been seen in warfare.* Surely we could not sink to such barbarity! Is thy servant a dog? But martial expediency soon compelled the Allies to enlist the resources of chemistry; the instruction of our enemies was soon bettered, and before the armistice there were developments in technique and destructive force that would have delighted Nisroch, who first invented aërial "machinations to plague the sons of men." A group of medical men representing the chief universities and medical bodies of the United Kingdom was innocent enough to suggest that such an unclean weapon—the use of lethal gases, "condemning its victims to death by long-drawn-out torture," and with infinite possibilities for its further development—should be for ever abolished. "Steeped in folly by theories and prepossessions," failure to read the "lessons of war which should have sufficed to convince a beetle"—such were among the newspaper comments; and in other ways we were given to understand that our interference in such matters was most untimely. All the same, it is gratifying to see that the suggestion has been adopted at the Peace Congress.

With what a howl of righteous indignation the slaughter of our innocent women and children by the bombing of open towns was received. It was a dirty and bloody business, worthy of the Oxydracians, who by means of Levin-bolts and Thunders more horrible, more frightful, more diabolical, maiming, breaking, tearing, and slaying more folk, confounded men's senses and threw down more walls than would a hundred thunderbolts (Rabelais, Bk. IV, ch. lxi).

Against reprisals there was at first a strong feeling. Early in 1916 I wrote to *The Times:* "The cry for reprisals illustrates the exquisitely hellish state of mind into which war plunges even sensible men. Not a pacifist, but a 'last ditcher,' yet I refuse to believe that as a nation, how bitter soever the provocation, we shall stain our hands in the blood of the innocent. In this matter let us be free from bloodguiltiness, and let not the undying reproach of humanity rest on us as on the Germans." Two years changed me into an ordinary barbarian. A detailed tally of civilians killed by our airmen has not, I believe, been published, but the total figures meet the requirements of a *lex talionis*. Could a poll have been taken a week before the armistice as to the moral justification of the bombing of Berlin—for which we were ready—how we should have howled at the proposer of any doubt. And many Jonahs were displeased that a city greater than Nineveh, with more than the three score and ten thousand who knew not the right hand from the left, had been spared. We may deplore the necessity and lament, as did a certain great personage:

> . . . yet public reason just—
> Honour and empire with revenge enlarged
> . . . compels me now
> To do what else, though damned, I should abhor.

All the same, we considered ourselves "Christians of the best edition, all picked and culled," and the churches remained open, prayers rose to Jehovah, many of Whose priests—even His bishops!—were in khaki, and quit themselves like men—yes, and scores died the death of heroes! Into such hells of inconsistency does war plunge the best of us!

Learning—new or old—seems a vain thing to save a nation, but possibly as a set-off science, as represented by cellulose and sulphuric acid, may yet prove the best bulwark of civilization. In his *History of the Origin of Medicine* (1778, p. 30) Lettsom maintains that the invention of firearms has done more to prevent the destruction of the human species than any other discovery. He says: "Invention and discernment of mind have made it possible to reverse the ancient maxim that strength has always prevailed over wisdom." Science alone may prevent a repetition of the story of Egypt, of Babylonia, of Greece, and of Rome. The suggestion seems brazen effrontery when we have not even given the world the equivalent of the Pax Romana. Ah! what a picture of self-satisfied happiness in Plutarch! One envies that placid life in the midst of the only great peace the world has known, spanning a period of more than two hundred years. And he could say, "No tumults, no civil sedition, no tyrannies, no pestilences nor calamities depopulating Greece, no epidemic disease needing powerful and choice drugs and medicines," though as a Delphic priest there is a pathetic lament that the Pythian priestess has now only commonplace questions to deal with.* Surely those cultivated men of his circle must have felt that their house could never be removed. Has Science reached such control over Nature that she will enable our civilization to escape the law of the Ephesian, written on all known records—*panta rei!* Perhaps so, now that material civilization is world-wide, cataclysmic forces, powerful enough in centres of origin, may weaken as they pass out in circles. Let this be our hope in the present crisis. At any rate, in the free democracies in which Demos with safety says "L'Etat c'est moi," it has yet to be determined whether Science, as the embodiment of a mechanical force, can rule without invoking ruin. Two things are clear: there must be a very different civilization or there will be no civilization at all; and the other is that neither the old religion combined with the old learning, nor both with the new science, suffice to save a nation bent on self-destruction. The suicide of Germany, the outstanding fact of the war, followed an outburst of national megalomania. For she had religion—it may shock some of you to hear! I mean the people, not the writers or the thinkers, but the people for whom Luther lived and Huss died. Of the two

* I am sorry to have seen Sargent's picture, "Gassed," in this year's Academy. It haunts the mind like a nightmare.

* Why the Pythian priestess, etc. (Plutarch's *Morals*, vol. iii, p. 100. Goodwin's edition.)

devotional ceremonies which stand supreme in my memory one was a service in the Dom, Berlin, in which "not the great nor well bespoke, but the mere uncounted folk" sang Luther's great hymn, *Ein' feste' Burg ist unser Gott.** With the Humanities Germany never broke, and the proportion of students in her schools and universities who studied Greek and Latin has been higher than any other country. You know better than I the innumerable classical studies of her scholars. In classical learning relating to science and medicine she simply had the field, for one scholar in other countries she had a dozen, and the monopoly of journals relating to the history of these subjects. And she had science, and led the world in the application of the products of the laboratory to the uses of everyday life—in commerce, in the Arts, and in war. Withal, like Jeshurun, she waxed fat; and did ever such pride go before such destruction! What a tragedy that the successors of Virchow and Traube and Helmholtz and Billroth should have made her a byword among the nations! "Lilies that fester smell far worse than weeds."

II.

So much preliminary to the business before us, to meet changed conditions as practical men, with the reinforcement born of hope or with the strong resolution of despair.

For what does this Classical Association stand? What are these classical interests that you represent? Take a familiar simile. By a very simple trick, you remember, did Empedocles give Menippus in the moon-halt—the first stage of his memorable trip—such long and clear vision that he saw the tribes of men like a nest of ants, a seething mass going to and fro at their different tasks. Of the function of the classical members in this myrmecic community there can be no question. Neither warriors, nor slaves, nor neuters, you live in a well-protected social environment, heretofore free from enemies, and have been well taken care of. I hate to speak of you as larvae, but as such you perform a duty of the greatest importance in this trophidium stage of your existence. Let me explain. From earliest days much attention has been paid by naturalists to the incredible affection—"incredible *στοργή*," Swammerdam calls it—which ants display in feeding, licking, and attending the larvae. Disturb a nest, and the chief care is to take them to a place of safety. This attention is what our symphilic community—to use a biological term—bestows on you. So intensely altruistic, apparently, is this behaviour, that for the very word "*στοργή*," which expresses the tenderest of all feelings, there is a difficulty in finding an equivalent; indeed, Gilbert White used it almost as an English word. The truth is really very different. It has been shown that the nursing function—or instinct—is really trophallactic. In the case of the ant the nurse places the larva on its back, and the broad ventral surface serves as a trough for the food, often predigested. The skill and devotion with which this is done are among the wonders in the life of the insect to which moralists have never tired of urging a visit. But listen to the sequel! The larva is provided with a pair of rich honey-bags in the shape of salivary glands, big exudatoria from which is discharged an ambrosia greedily lapped up by the nurse, who with this considers herself well paid for her care. In the same manner, when the assiduous V.A.D. wasp distributes food to the larvae, the heads of which eagerly protrude from their cells, she must be paid by a draught of nectar from their exudatoria, while if it is not forthcoming the wasp seizes the head of the larva in her mandibles and jams it back into its cell and compels it to pay up. The lazy males will play the same game and even steal the much sought liquid without any compensatory gift of nourishment.†

What does the community at large, so careful of your comforts, expect from you? Surely the honey-dew and the milk of paradise secreted from your classical exudatoria, which we lap up greedily in recensions, monographs, commentaries, histories, translations, and brochures. Among academic larvae you have for centuries absorbed the almost undivided interest of the nest, and not without reason, for the very life of the workers depends on the hormones you secrete. Though small in number, your group has an enormous kinetic value, like our endocrine organs. For man's body, too, is a humming hive of working cells, each with its specific function, all under central control of the brain and heart, and all dependent on materials called hormones (secreted by small, even insignificant-looking structures) which lubricate the wheels of life. For example, remove the thyroid gland just below the Adam's apple, and you deprive man of the lubricants which enable his thought-engines to work—it is as if you cut off the oil-supply of a motor—and gradually the stored acquisitions of his mind cease to be available, and within a year he sinks into dementia. The normal processes of the skin cease, the hair falls, the features bloat, and the paragon of animals is transformed into a shapeless caricature of humanity. These essential lubricators, of which a number are now known, are called hormones—you will recognize from its derivation how appropriate is the term.

Now, the men of your guild secrete materials which do for society at large what the thyroid gland does for the individual. The Humanities are the hormones. Our friend Mr. P. S. Allen read before this Association a most suggestive paper on the historical evolution of the word Humanism. I like to think of the pleasant-flavoured word as embracing all the knowledge of the ancient classical world—what man knew of nature as well as what he knew of himself. Let us see what this University means by the *Literae Humaniores*. The "Greats" papers for the past decade make interesting study. With singular uniformity there is diversity enough to bear high tribute to the ingenuity of the examiners. But comparing the subjects in 1918 with those in the first printed papers of the School in 1831, one is surprised to find them the same—practically no change in the eighty-seven years! Compare them, again, with the subjects given in John Napleton's *Considerations*, 1773—no change! and with the help of Rashdall we may trace the story of the studies in Arts, only to find that as far back as 1267, with different names sometimes, they have been through all the centuries essentially the same—Greek and Latin authors, logic, rhetoric, grammar, and the philosophies, natural, moral, and metaphysical—practically the seven liberal Arts for which, as you may see by the name over the doors, Bodley's building provided accommodation. Why this invariableness in an ever-turning world? One of the marvels, so commonplace that it has ceased to be marvellous, is the deep rooting of our civilization in the soil of Greece and Rome—much of our dogmatic religion, practically all the philosophies, the models of our literature, the ideals of our democratic freedom, the fine and the technical arts, the fundamentals of science, and the basis of our law. The Humanities bring the student into contact with the master minds who gave us these things—with the dead who never die, with those immortal lives "not of now or of yesterday but which always were." As true to-day as in the fifth century B.C. the name of Hellas stands no longer for the name of a race, but as the name of knowledge; or, as more tersely put by Maine, "Except the blind forces of Nature, nothing moves [intellectually, he means] in this world that is not Greek in origin." Man's Anabasis from the old priest-ridden civilizations of the east began when "the light of reason lighted up all things," with which saying Anaxagoras expressed our modern outlook on life.

The Humanities have been a subject of criticism in two directions. Their overwhelming prominence, it is claimed, prevents the development of learning in other and more useful directions; and the method of teaching is said to be antiquated and out of touch with the present needs. They control the academic life of Oxford. An analysis of the Register for 1919 shows that of the 257 men comprising the Heads and Fellows of the twenty-three colleges (including St. Edmund's Hall), only fifty-one are scientific, including the mathematicians.

It is not very polite perhaps to suggest that as transmitters and interpreters they should not bulk quite so large in a modern university. 'Twas all very well

> . . . in days when wits were fresh and clear
> And life ran gaily as the sparkling Thames—

in those happy days when it was felt that all knowledge had been garnered by those divine men of old time,

* And the other, how different! The crowded Blue Mosque of Cairo, and the crowded streets with the thousands of kneeling Moslems awaiting the cry of the Muezzin from the tower.

† Professor Wheeler in *Proceedings of Amer. Phil. Soc.*, vol. lvii, No. 4, 1918.

that there was nothing left but to enjoy the good things harvested by such universal providers as Isidore, Rabanus Maurus, and Vincent of Beauvais, and those stronger dishes served by such artists as Albertus Magnus and St. Thomas Aquinas—delicious blends of such skill that only the palate of an Apicius could separate Greek, Patristic, and Arabian savours.

It is not the dominance, but the unequal dominance that is a cause of just complaint. As to methods of teaching—by their fruits ye shall know them. The product of "Greats" needs no description in this place. Many deny the art to find the mind's construction in the face, but surely not the possibility of diagnosing at a glance a "first in Greats"! Only in him is seen that altogether superior expression, that self-consciousness of having reached life's goal, of having, in that pickled sentence of Dean Gaisford's Christmas sermon, done something "that not only elevates above the common herd, but leads not unfrequently to positions of considerable emolument." "Many are the wand-bearers, few are the mystics," and a system should not be judged by the exceptions. As a discipline of the mind for the few, the system should not be touched, and we should be ready to sacrifice a holocaust of undergraduates every year to produce in each generation a scholar of the type of, say, Ingram Bywater. 'Tis Nature's method—does it not cost some thousands of eggs and fry to produce one salmon?

But the average man, not of scholar timber, may bring one railing accusation against his school and college. Apart from mental discipline, the value of the ancient languages is to give a key to their literatures. Yet we make boys and young men spend ten or more years on the study of Greek and Latin, at the end of which time the beauties of the languages are still hidden because of the pernicious method in which they are taught. It passes my understanding how the more excellent way of Montaigne, of Milton, and of Locke should have been neglected until recently. Make the language an instrument to play with and to play with thoroughly, and recognize that except for the few in "Mods." and "Greats" it is superfluous to know how the instrument is constructed, or to dissect the neuro-muscular mechanism by which it is played. It is satisfactory to read that the Greek Curriculum Committee thinks "it is possible in a comparatively short time to acquire a really valuable knowledge of Greek, and to learn with accuracy and fair fluency some of the most important works in Greek literature." I am sure of it, if the teacher will go to school to Montaigne and feed fat against that old scoundrel Protagoras a well-earned grudge for inventing grammar—*pace* Mr. Livingstone, every chapter in whose two books appeals to me, except those on grammar, against which I have a medullary prejudice. I speak, of course, as a fool among the wise, and I am not pleading for the "Greats" men, but for the average man whom to infect with the spirit of the Humanities is the greatest single gift in education. To you of the elect this is pure camouflage—the amateur talking to the experts; but there is another side upon which I feel something may be said by one whose best friends have been the old Humanists, and whose breviary is Plutarch, or rather Plutarch gallicized by Montaigne. Paraphrasing Mark Twain's comment upon Christian Science, the so-called Humanists have not enough science, and Science sadly lacks the Humanities. This unhappy divorce, which should never have taken place, has been officially recognized in the two reports edited by Sir Frederic Kenyon,* which have stirred the pool, and cannot but be helpful. To have got constructive, anabolic action from representatives of interests so diverse is most encouraging. While all agree that neither in the Public Schools nor in the older Universities are the conditions at present in keeping with the urgent scientific needs of the nation, the specific is not to be sought in endowments alone, but in the leaven which may work a much needed change in both branches of knowledge.

III.

The School of Literae Humaniores excites wonder in the extent and variety of the knowledge demanded, and there is everywhere evidence of the value placed upon the ancient models; but this wonder pales before the gasping astonishment at what is not there. Now and again a hint, a reference, a recognition, but the moving forces which have made the modern world are simply ignored. Yet they are all Hellenic, all part and parcel of the Humanities in the true sense, and all of prime importance in modern education. Twin berries on one stem, grievous damage has been done to both in regarding the Humanities and Science in any other light than complemental. Perhaps the anomalous position of science in our philosophical school is due to the necessary filtration, indeed the preservation, of our classical knowledge, through ecclesiastical channels. Of this the persistence of the Augustinian questions until late in the eighteenth century is an interesting indication. The moulder of Western Christianity had not much use for science, and the Greek spirit was stifled in the atmosphere of the Middle Ages. "Content to be deceived, to live in a twilight of fiction, under clouds of false witnesses, inventing according to convenience, and glad to welcome the forger and the cheat"—such, Lord Acton somewhere says, were the Middle Ages. Strange, is it not, that one man alone, Roger Bacon, mastered his environment and had a modern outlook!*

The practical point for us here is that in the only school dealing with the philosophy of human thought, the sources of the new science that has made a new world are practically ignored. One gets even an impression of neglect in the Schools, or at any rate of scant treatment, of the Ionian philosophers, the very fathers of your fathers. Few "Greats" men, I fear, could tell why Hippocrates is a living force to-day, or why a modern scientific physician would feel more at home with Erasistratus and Herophilus at Alexandria, or with Galen at Pergamos, than at any period in our story up to, say, Harvey. Except as a delineator of character, what does the Oxford scholar know of Theophrastus, the founder of modern botany, and a living force to-day in one of the two departments of biology, and made accessible recently to English readers—perhaps indeed to Greek readers!—by Sir Arthur Hort.† Beggarly recognition or base indifference is meted out to the men whose minds have fertilized science in every department. The pulse of every student should beat faster as he reads the story of Archimedes, of Hero, of Aristarchus—names not even mentioned in the "Greats" papers in the past decade. Yet the methods of these men exorcised vagaries and superstitions from the human mind and pointed to a clear knowledge of the laws of nature. It is surprising that some wag among the Examiners has never relieved the grave monotony of the papers by such peripatetic questions as "How long a gnat lives," "To how many fathoms' depth the sunlight penetrates the sea," and "What an oyster's soul is like"—questions which indicate whence the modern Lucian got his inspiration to chaff so successfully Boyle and the Professors of Gresham College.

May I dwell upon two instances of shocking neglect? It really is amusing in Oxford to assert neglect of "the measurer of all Art and Science, whose is all that is best in the passing sublunary world," as Richard de Bury calls "the Prince of the Schooles." In Gulliver's voyage to Laputa he paid a visit to the little island of Glubbdubdrib, whose Governor, you remember, had an Endorian command over the spirits, such as Sir Oliver Lodge or Sir Arthur Conan Doyle might envy. When Aristotle and his commentators were summoned, to Gulliver's surprise they were strangers, for the reason that having so horribly misrepresented Aristotle's meaning to posterity, a consciousness of guilt and shame kept them far away from him in the lower world. Such shame, I fear, will make the shades of many classical dons of this University seek shelter with the commentators when they realize their neglect of one of the most fruitful of all the activities of the Master. In biology Aristotle speaks for the first time the language of modern science, and indeed he seems to have been first and foremost a biologist, and his natural history studies influenced profoundly his sociology, his psychology, and his philosophy in general. The beginner may be sent now to Professor D'Arcy Wentworth Thompson's Herbert Spencer Lecture,

* *Education, Scientific and Humane*, 1917, and *Education, Secondary and University*, 1919.

* How modern Bacon's outlook was may be judged from the following sentence: "Experimental science has three great prerogatives over all other sciences—it verifies conclusions by direct experiment, it discovers truths which they could never reach, and it investigates the secrets of Nature and opens to us a knowledge of the past and of the future."

† Loeb's *Classics*.

1913, and he must be indeed a dull and muddy-mettled rascal whose imagination is not fired by the enthusiastic—yet true—picture of the founder of modern biology, whose language is our language, whose methods and problems are our own, the man who knew a thousand varied forms of life, of plant, of bird, and animal, their outward structure, their metamorphosis, their early development; who studied the problems of heredity, of sex, of nutrition, of growth, of adaptation, and of the struggle for existence.* And the senior student, if capable of appreciating a biological discovery, I advise to study the account by Johannes Müller† (himself a pioneer in anatomy) of his rediscovery of Aristotle's remarkable discovery of a special mode of reproduction in one of the species of sharks. For two thousand years the founder of the science of embryology had neither rival nor worthy follower. There is no reference, I believe, to the biological works in the Literae Humaniores papers for the past ten years, yet they form the very foundations of discoveries that have turned our philosophies topsy-turvy.

Nothing reveals the unfortunate break in Humanities more clearly than the treatment of the greatest Nature-poet in literature, a man who had "gazed on Nature's naked loveliness" unabashed, the man who united, as no one else has ever done, the "functions and temper and achievement of science and poetry" (Herford). The golden work of Lucretius is indeed recognized, and in Honour Moderations Books I—III and V are set as one of seven alternatives in section D; and scattered through the "Greats" papers are set translations and snippets here and there; but anything like adequate consideration from the scientific side is to be sought in vain. Unmatched among the ancients or moderns is the vision by Lucretius of continuity in the workings of Nature—not less of *Le silence éternel de ces espaces infinis* which so affrighted Pascal, than of "the long limitless age of days, the age of all time that has gone by"—

> . . . longa diei
> infinita aetas anteacti temporis omnis.

And it is in a Latin poet that we find up-to-date views of the origin of the world and of the origin of man. The description of the wild discordant storm of atoms (Book V) which led to the birth of the world might be transferred verbatim to the accounts of Poincaré or of Arrhenius of the growth of new celestial bodies in the Milky Way. What an insight into primitive man and the beginnings of civilization! He might have been a contemporary and friend, and doubtless was a tutor, of Tylor. Book II, a manual of atomic physics with its marvellous conception of—

> . . . the flaring atom streams
> and torrents of her myriad universe,

can only be read appreciatively by pupils of Roentgen or of J. J. Thomson. The ring theory of magnetism advanced in Book VI has been reproduced of late by Parsons, whose magnetons rotating as rings at high speed have the form and effect with which this disciple of Democritus clothes his magnetic physics.

And may I here enter a protest? Of love-philtres that produce insanity we may read the truth in a chapter of that most pleasant manual of erotology, the *Anatomy of Melancholy*. Of insanity of any type that leaves a mind capable in lucid intervals of writing such verses as *De Rerum Natura* we know nothing. The sole value of the myth is its causal association with the poem of Tennyson. Only exsuccous dons who have never known the wiles and ways of the younger Aphrodite would take the intensity of the feeling in Book IV as witness to anything but an accident which may happen to the wisest of the wise, when enthralled by Vivien or some dark lady of the Sonnets!

In the School of Literae Humaniores the studies are based on classical literature and on history, "but a large number of students approach philosophical study from other sides. Students of such subjects as mathematics, natural science, history, psychology, anthropology, or political economy, became naturally interested in philosophy, and their needs are at present very imperfectly provided for in this University." This I quote from a Report to the Board of the Faculty of Arts made just before the war on a proposed new Honour School, the subject of which should be the principles of philosophy considered in their relation to the Sciences. That joint action of this kind should have been taken by the Boards of Arts and of Science indicates a widespread conviction that no man is cultivated up to the standard of his generation who has not an appreciation of how the greatest achievements of the human mind have been reached; and the practical question is how to introduce such studies into the course of liberal education, how to give the science school the leaven of an old philosophy, how to leaven the old philosophical school with the thoughts of science.*

It is important to recognize that there is nothing mysterious in the method of science, or apart from the ordinary routine of life. Science has been defined as the habit or faculty of observation. By such the child grows in knowledge, and in its daily exercise an adult lives and moves. Only a quantitative difference makes observation scientific—accuracy—in that way alone do we discover things as they really are. This is the essence of Plato's definition of science as "the discovery of things as they really are," whether in the heavens above, in the earth beneath, or in the observer himself. As a mental operation, the scientific method is equally applicable to deciphering a bit of Beneventan script, to the analysis of the Commission on Coal-mines, a study of the mechanism of the nose-dive, or of the colour scheme in tiger-beetles. To observation, with reasoned thought, the Greek added experiment (but never fully used it in biology), the instrument which has made science productive, and to which the modern world owes its civilization. Our everyday existence depends on the practical application of discoveries in pure science by men who had no other motives than a search for knowledge of Nature's laws, a disinterestedness which Burnet claims to be the distinctive gift of Hellas to humanity. With the discovery of induced currents Faraday had no thought of the dynamo, Crookes's tubes were a plaything until Roentgen turned them into practical use with the *x* rays. Perkin had no thought of transforming chemical industry when he discovered aniline dyes. Priestley would have cursed the observation that an electrical charge produced nitrous acid had he foreseen that it would enable Germany to prolong the war, but he would have blessed the thought that it may make us independent of all outside sources for fertilizers.

The extraordinary development of modern science may be her undoing. Specialism, now a necessity, has fragmented the specialities themselves in a way that makes the outlook hazardous. The workers lose all sense of proportion in a maze of minutiae. Everywhere men are in small coteries intensely absorbed in subjects of deep interest, but of very limited scope. Chemistry, a century ago an appanage of the Chair of Medicine or even of Divinity, has now a dozen departments, each with its laboratory and literature, sometimes its own society. Applying themselves early to research, young men get into backwaters far from the main stream. They quickly lose the sense of proportion, become hypercritical, and the smaller the field, the greater the tendency to megalocephaly. The study for fourteen years of the variations in the colour scheme of the 1,300 species of tiger-beetles scattered over the earth may sterilize a man into a sticker of pins and a paster of labels; on the other hand, he may be a modern biologist whose interest is in the experimental modification of types, and in the mysterious insulation of hereditary characters from the environment. Only in one direction does the modern specialist acknowledge his debt to the dead languages. Men of science pay homage, as do no others, to the god of words whose magic power is nowhere so manifest as in the plastic language of Greece. The only visit many students pay to Parnassus is to get an intelligible label for a fact or form newly discovered. Turn the pages of such a dictionary of chemical terms as Morley and Muir, and you meet in close-set columns countless names unknown a decade ago, and unintelligible to the specialist in another department unless familiar with Greek, and as meaningless as the Arabic jargon in such mediaeval collections as the Synonyma of Simon Januensis or the Pandects of Matheas Sylvaticus. As

* Summarized from D'Arcy Wentworth Thompson.
† *Ueber den Glatten Hai des Aristoteles*, Berlin, 1842.

* Since writing this lecture, Professor J. A. Stewart has sent me his just-published essay on *Oxford after the War and a Liberal Education*, in which he urges with all the weight of his learning and experience that the foundations of a liberal education in Oxford should be "No Humane Letters without Natural Science and no Natural Science without Humane Letters."

Punch put it the other day in a delightful poetical review of Professor West's volume:*

> Botany relies on Latin ever since Linnaeus' days;
> Biologic nomenclature draws on Greek in countless ways;
> While in Medicine it is obvious you can never take your oath
> What an ailment means exactly if you haven't studied both.
> (17. iv. 19.)

Let me give a couple of examples.

Within the narrow compass of the primitive cell from which all living beings originate, onomatomania runs riot. The process of mitosis has developed a special literature and language. Dealing not alone with the problems of heredity and of sex, but with the very dynamics of life, the mitotic complex is much more than a simple physiological process, and in the action and interaction of physical forces the cytologist hopes to find the key to the secret of life itself. And what a Grecian he has become! Listen to this account which Aristotle would understand much better than most of us.

The karyogranulomes, not the idiogranulomes or microsomenstratum in the protoplasm of the spermatogonia, unite into the idiosphaerosome, acrosoma of Lenhossék, a protean phase, as the idiosphaerosome differentiates into an idiocrytosome and an idiocalyptosome, both surrounded by the idiosphaerotheca, the archoplasmic vesicle; but the idioectosome disappears in the metamorphosis of the spermatid into a sphere, the idiophtharosome. The separation of the calyptosome from the cryptosome antedates the transformation of the idiosphaerotheca into the spermiocalyptrotheca.†

Or take a more practical if less Cratylean example. In our precious cabbage patches the holometabolous insecta are the hosts of parasitic polyembryonic hymenoptera, upon the prevalence of which rests the psychic and somatic stamina of our fellow-countrymen; for the larvae of *Pieris brassicae*, vulgarly cabbage moth, are parasitised by the *Apantales glomeratus*, which in turn has a hyperparasite, the *Mesochorus pallidus*. It is tragic to think that the fate of a plant, the dietetic and pharmaceutical virtues of which have been so extolled by Cato, and upon which two of my Plinean colleagues of uncertain date, Chrysippus and Dieuchés, wrote monographs—it fills one with terror to think that a crop so dear to Hodge (*et veris cymata!* the Brussels sprouts of Columella) should depend on the deposition in the ovum of the Pieris of another polyembryonic egg. The cytoplasm or ooplasm of this forms a trophoamnion and develops into a polygerminal mass, a spherical morula, from which in turn develop a hundred or more larvae, which immediately proceed to eat up everything in and of the body of their host. Only in this way does Nature preserve the Selenas, the Leas, and the Crambes, so dear to Cato and so necessary for the sustenance of our hard-working, brawny-armed Brasserii.

From over-specialization scientific men are in a more parlous state than are the Humanists from neglect of classical tradition. The salvation of science lies in a recognition of a new philosophy—the *scientia scientiarum*, of which Plato speaks. "Now when all these studies reach the point of intercommunion and connexion with one another and come to be considered in their mutual affinities, then I think, and not till then, will the pursuit of them have a value." Upon this synthetic process I hesitate to dwell; since like Dr. Johnson's friend, Oliver Edwards, I have never succeeded in mastering philosophy—"cheerfulness was always breaking in."

In the proposed Honour School the principles of philosophy are to be dealt with in relation to the sciences, and by the introduction of literary and historical studies, which George Sarton advocates so warmly as the new Humanism,‡ the student will gain a knowledge of the evolution of modern scientific thought. But to limit the history to the modern period—Kepler to the present time is suggested—would be a grave error. The scientific student should go to the sources and in some way be taught the connexion of Democritus with Dalton, of Archimedes with Kelvin, of Aristarchus with Newton, of Galen with John Hunter, and of Plato and Aristotle with them all. And the glories of Greek science should be opened in a sympathetic way to "Greats" men. Under new regulations at the public schools, a boy of sixteen or seventeen should have enough science to appreciate the position of Theophrastus in Botany, and perhaps himself construct Hero's fountain. Science will take a totally different position in this country when the knowledge of its advances is the possession of all educated men. The time too is ripe for the Bodleian to become a *studium generale*, with ten or more departments, each in charge of a special sub-librarian. When the beautiful rooms, over the portals of which are the mocking blue and gold inscriptions, are once more alive with students, the task of teaching subjects on historical lines will be greatly lightened. What has been done with the Music-room, and with the Science-room through the liberality of Dr. and Mrs. Singer, should be done for classics, history, literature, theology, etc., each section in charge of a sub-librarian who will be Doctor perplexorum alike to professor, don, and undergraduate.

I wish time had permitted me to sketch even briefly the story of the evolution of science in this old seat of learning. A fortunate opportunity enables you to see two phases in its evolution. Through the kind permission of several of the Colleges, particularly Christ Church, Merton, St. John's, and Oriel, and with the co-operation of the Curators of the Bodleian and Dr. Cowley, Mr. R. T. Gunther of Magdalen College has arranged a loan exhibition of the early scientific instruments and MSS. A series of quadrants and astrolabes show how Arabian instruments, themselves retaining much of the older Greek models, have translated Alexandrian science into the Western world. Some were constructed for the latitude of Oxford, and one was associated with our astronomer-poet, Chaucer.

For the first time the instruments and works of the early members of the Merton School of astronomer-physicians have been brought together. They belong to a group of men of the fourteenth century—Reed, Aschenden, Simon Bredon, Merle, Richard of Wallingford, and others—whose labours made Oxford the leading scientific University of the world.

Little remains of the scientific apparatus of the early period of the Royal Society, but through the kindness of the Dean and governing body of Christ Church, the entire contents of the cabinet of philosophical apparatus of the Earl of Orrery, who flourished some thirty years after the foundation of the Society, is on exhibit, and the actual astronomical model, the "Orrery," made for him and called after his name.

The story of the free cities of Greece shows how a love of the higher and brighter things in life may thrive in a democracy. Whether such love may develop in a civilization based on a philosophy of force is the present problem of the Western world. To-day there are doubts, even thoughts of despair, but neither man nor nation is to be judged by the behaviour in a paroxysm of delirium. Lavoisier perished in the Revolution, and the Archbishop of Paris was butchered at the altar by the Commune, yet France was not wrecked; and Russia may survive the starvation of such scholars as Danielevski and Smirnov, and the massacre of Botkin. To have intelligent freemen of the Greek type with a stake in the State (not mere chattels from whose daily life the shadow of the workhouse never lifts), to have the men and women who could love the light put in surroundings in which the light may reach them, to encourage in all a sense of brotherhood reaching the standard of the Good Samaritan—surely the realization in a democracy of such reasonable ambitions should be compatible with the control by science of the forces of nature for the common good, and a love of all that is best in religion, in art, and in literature.

Amid the smoke and squalor of a modern industrial city, after the bread-and-butter struggle of the day, "the Discobolus has no gospel." Our puritanized culture has been known to call the Antinous vulgar. Copies of these two statues, you may remember, Samuel Butler found stored away in the lumber-room of the Natural History Museum, Montreal, with skins, plants, snakes, and insects, and in their midst, stuffing an owl, sat "the brother-in-law of the haberdasher of Mr. Spurgeon." Against the old man* who thus blasphemed beauty, Butler broke into those memorable verses with the refrain "O God! O Montreal!"

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* *The Value of the Classics*, Princeton University Press, 1917.

† Of course I have made this up out of a recent number of the *American Journal of Anatomy*, 24, 1.

‡ *Popular Science Monthly*, September, 1918, and *Scientia*, vol. xxiii, 3.

* I knew him well—a dear old Cornishman named Passmore.

Let us not be discouraged. The direction of our vision is everything, and after weltering four years in chaos poor stricken humanity still nurses the unconquerable hope of an ideal state "whose citizens are happy . . . absolutely wise, all of them brave, just and self-controlled . . . all at peace and unity, and in the enjoyment of legality, equality, liberty, and all other good things." Lucian's winning picture of this "Universal Happiness" might have been sketched by a Round Table pen or some youthful secretary to the League of Nations. That such hope persists is a witness to the power of ideals to captivate the mind; and the reality may be nearer than any of us dare dream. If survived, a terrible infection, such as confluent small-pox, seems to benefit the general health. Perhaps such an attack through which we have passed may benefit the body cosmic. After discussing the various forms of government, Plato concludes that "States are as the men are, they grow out of human characters" (*Rep.* VIII), and then, as the dream-republic approached completion, he realized that after all the true State is within, of which each one of us is the founder, and patterned on an ideal the existence of which matters not a whit. Is not the need of this individual reconstruction the Greek message to modern democracy? and with it is blended the note of individual service to the community on which Professor Gilbert Murray has so wisely dwelt.

With the hot blasts of hate still on our cheeks, it may seem a mockery to speak of this as the saving asset in our future; but is it not the very marrow of the teaching in which we have been brought up? At last the gospel of the right to live, and the right to live healthy, happy lives, has sunk deep into the hearts of the people; and before the war, so great was the work of science in preventing untimely death that the day of Isaiah seemed at hand "when a man's life should be more precious than fine gold, even a man than the gold of Ophir." There is a sentence in the writings of the Father of Medicine upon which all commentators have lingered, "*ἦν γὰρ παρῇ φιλανθρωπίη, πάρεστι καὶ φιλοτεχνίη*"*—the love of humanity associated with the love of his craft!—philanthropia and philotechnia—the joy of working joined in each one to a true love of his brother. Memorable sentence indeed! in which for the first time was coined the magic word *philanthropy*, and conveying the subtle suggestion that perhaps in this combination the longings of humanity may find their solution, and Wisdom—philosophia—at last be justified of her children.

DIAGNOSIS OF TUBERCULOSIS BY THE COMPLEMENT DEVIATION METHOD.

BY

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VARIOUS attempts based on Bordet's phenomenon have been made with a view to determine whether, in tuberculosis, as in syphilis, a diagnosis of the disease could be established by the complement deviation method. First studied by Wassermann, the subject was further investigated by subsequent workers, the technique employed in the test being in fundamental particulars identical with that of the Wassermann reaction. A number of antigens, all being preparations or extracts in some form of the tubercle bacilli, have been used. Among these were the old tuberculin used by Wassermann[1]; an emulsion of dry tubercle by Nesfield,[2] and Emery[3]; an emulsion of dead tubercle by Dudgeon[4]; and an emulsion of living tubercle by Inman,[5] McIntosh and Fiddes,[6] and Fidlar.[7] The outcome of their investigations in general showed that in a certain proportion of tuberculous cases (60 to 90 per cent.) an antibody could be demonstrated in the blood which, in the presence of a tubercle antigen, was capable of inhibiting complement. On the other hand, it was also found that not infrequently (5 to 30 per cent.) a similar reaction resulting in the absorption of complement was obtained with a normal, but more often with a luetic, serum. Further, it was shown that where a positive reaction was elicited the amount of complement fixed was usually small. In face of these results, in especial of the large proportion of cases giving a non-specific reaction, it must be conceded that a diagnostic significance cannot be ascribed to any of the various tests. Thus the want of a reliable laboratory test which would not only detect the presence of a tuberculous lesion, but also discriminate an active from a latent lesion, has led us to try to elaborate a technique admitting practical application. As in the test the antigen constitutes a very important factor and one which is probably responsible, in part at least, for the discrepancies in the results arrived at by previous workers, the first step in our study was directed to the question of preparation of this reagent. Our investigation was begun towards the latter part of 1918, and was conducted throughout in the Royal College of Physicians' Laboratory, Edinburgh. After many preliminary trials, which need not be detailed here, both in regard to the antigen preparation and to the technique, we have adopted for the test the following procedure:

Requisites for the Test.

Tubercle Antigen.—This is essentially the bodies of the tubercle bacilli after their fatty substance has been removed. The process of extracting the fat is, with slight modification, that adopted by one of us (Wang)[8] in studying the antigenic effect of lipoids *in vivo*. For the preparation a good growth of the bacilli is required. This is obtained by inoculating a 5 per cent. glycerin veal broth (standardized to + 5) with a young egg culture, preferably one of two to three weeks old. The amount of the broth medium used is 200–300 c.cm. contained in a conical litre flask, and the growth is started on the surface. At least two flasks should be sown, one with tubercle bacilli of the human type, the other with bacilli of the bovine type. When, at the tenth week, a well formed scum is seen, such a culture is ripe for use. If a good growth does not occur, as often is the case with primary cultures, subinoculation by transplanting a piece of the surface growth on to fresh broth is necessary. The growth is transferred to a bottle and is now dehydrated by treating with absolute alcohol, which should be repeatedly changed. After the final washing, the alcohol is replaced with ether, in the amount of about 100 c.cm. to 10 grams of the wet bacilli. The bottle is shaken for two hours in a mechanical shaker, at a speed of about 120 strokes per minute, and at the end the fluid is centrifuged at a high speed. The residue is now treated with chloroform in the same amount and shaken as before. Here, before drawing off the fluid for the centrifuge, it is mixed with three volumes of ether, and the shaking continued for another couple of hours. After centrifuging, the process is repeated alternately with fresh ether and chloroform, until five extractions in all have been completed. The residue is then dried and stored in the dark. A fluid antigen is made up for use by grinding 100 mg. of the residue with 3 c.cm. saline in a mechanical mill overnight. The mill may take the form of a circular flask (diameter 10 cm.) a little more than half-filled with glass balls of the size of small peas, and is driven at about twenty revolutions per minute. At the finish the fluid is drawn off and the flask and balls well washed with repeated changes of saline. The washings are pooled and enough saline is added to make 100 c.cm. The antigen is preserved in 0.5 per cent. phenol and kept in the cold.

Syphilitic Antigen.—This is an alcoholic extract of the human heart, with or without the addition of cholesterin. For use, the extract should be allowed to float on the saline for ten minutes before being mixed.

Patient's Serum.—(*a*) The blood is collected as for a Wassermann test from an arm vein with a needle. After separation, the serum is heated at 55 to 56° C. for two full hours. It is important that the serum should be heated on the day of the test, for, as has been pointed out by Browning and Mackenzie,[9] a serum may, on standing, develop increased anti-complementary power, whether it had been previously inactivated or not. (*b*) When, for any reason, the above procedure cannot be practised, sufficient blood for the test (to be carried out by the drop method

* *Œuvres complètes d'Hippocrates.* Par E. Littré, t. ix, 258.

hereafter described) may be obtained from the finger. The thumb, previously bathed in comfortably warm water, is deeply pricked and the blood allowed to flow into either a Wright's capsule or a small tube, till about 0.5 c.cm. or more blood is collected. The separated serum is inactivated as before, but here, to prevent undue loss of fluid during heating, the tube should be closed with a rubber cap.

Blood Suspension.—This is prepared from defibrinated ox blood, which at the final washing should be spun at a fixed speed for a definite time, so that approximately the same thickness of blood is obtained each time. This precaution is important, as unless the strength of the amboceptor is estimated at each day's test the haemolytic titre must vary according to the strength of the suspension and consequently to the thickness of the blood. For this reason it is therefore necessary that the titre of the amboceptor should be determined from time to time against a working dose of the blood of a fixed concentration, in the presence of an excess of complement—namely, 5 minimum haemolytic doses. For use, a 1 per cent. suspension is made up, sensitized at room temperature with 8 to 9 M.H.D. of amboceptor.

Complement.—The complement used is that of guinea-pig serum of from four to eighteen hours old. After the animal has been bled an examination of its organs should be made, and if, to the naked eye, evidence of disease, in particular tuberculosis, is found, the serum ought to be rejected.

Technique.

First Stage.—Preliminary to the test the M.H.D. of complement is ascertained as follows: With a graduated 1 c.cm. pipette 0.1 c.cm. complement is accurately measured into 2.9 c.cm. saline (dilution 1 in 30). To a row of tubes the following doses of this solution are added: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30 c.cm. Saline is added to equal bulk. Titration is made against 1 c.cm. of a 1 per cent. suspension of blood previously sensitized, as already stated, with 8 to 9 M.H.D. amboceptor. The tubes are incubated at 37° C. for an hour, and the M.H.D. is then noted.

Final Stage.—The titre of the complement being known, the neat guinea-pig serum is now diluted thus:

If M.H.D. complement (dilution 1 in 30) is—
- (*a*) 0.10 c.cm., 1 vol. serum is mixed with 29 vol. saline (dilution 1 in 30);
- (*b*) 0.15 c.cm., 1 vol. serum is mixed with 19 vol. saline (dilution 1 in 20);
- (*c*) 0.20 c.cm., 1 vol. serum is mixed with 14 vol. saline (dilution 1 in 15);
- (*d*) 0.25 c.cm., 1 vol. serum is mixed with 11 vol. saline (dilution 1 in 12);
- (*e*) 0.30 c.cm., 1 vol. serum is mixed with 9 vol. saline (dilution 1 in 10).

A serum giving weaker complement value than the last should not be used. It will be seen that 0.10 c.cm. of each of the above dilutions contains one M.H.D. of complement. For each serum three tubes are put up in the manner as shown in Table I.

TABLE I.—*Routine Method.*

	Tube 1.	Tube 2.	Tube 3.
Complement	0.20 c.cm. (2 M.H.D.)	0.40 c.cm. (4 M.H.D.)	0.40 c.cm. (4 M.H.D.)
Saline about	2 c.cm.	2 c.cm.	2 c.cm.
Syphilitic antigen	—	1 dose	—
Tubercle antigen	—	—	0.20 c.cm.
Patient's serum...	0.20 c.cm.	0.20 c.cm.	0 20 c.cm.
*Incubation.			
1 per cent. blood sensitized with 8 to 9 M.H.D. amboceptor	1 c.cm.	1 c.cm.	1 c.cm.

*Quarter of an hour at room temperature, then half an hour at 37° C., followed by a quarter of an hour at room temperature.

After the blood has been added the tubes are again incubated at 37° C., and a result is taken when once the first control tube shows complete haemolysis, generally ten to fifteen minutes.

The satisfactory results which have attended Donald's drop method[10] for the Wassermann test, practised by Harrison on a large scale and by one of us when the amount of serum available is insufficient for the test to be conducted in the usual way, has suggested to us that it might be applied here.

By this drop method we have tested over thirty specimens of serum in parallel with the first method, and have invariably found the two results agreed. However, this method should not be adopted as a routine and should only be practised when the first method is inapplicable. In the actual test the fluid is measured, instead of with an ordinary graduated pipette, in drops delivered from a vertically held Wright's pipette fitted with a teat, at a uniform rate and pressure. Except when a series of pipettes gauged to a standard is available, the same pipette should be used throughout the test, though it must be remembered that there is here a slight variation in the size of the drops between the different reagents. The pipette is cleansed between each reagent and between succeeding serums by filling and emptying several times with saline. In the preliminary stage of the technique the complement is titrated as in the first method and diluted to a constant strength—that is, 0.10 c.cm. 1 M.H.D.

The final stage is conducted as shown in Table II.

TABLE II.—*Drop Method.*

(The figures in the table indicate the number in drops.)

	Tube 1.	Tube 2.	Tube 3.
Complement (0.1 c cm. = 1 M.H.D.	1 dose	2 doses	2 doses
Saline	7	5	5
*Syphilitic antigen	—	1	—
Tubercle an igen	—	—	1
Patient's serum	1	1	1
Incubate as in first method.			
1 per cent. blood, sensitized with 8 to 9 M.H.D. amboceptor	5	5	5

*This should be made up to the strength so that 0.2 c.cm. is equivalent to a dose in the Wassermann test.

After the final incubation the tubes are read as in the first method.

Interpretations of Results.

A *negative* serum is indicated by a complete haemolysis in the third tube (one containing the tubercle antigen), where the first control tube is clear.

A *positive* serum is denoted, where haemolysis is complete in the first and second tube, by absence of or only partial haemolysis in the third tube. The strength of the reaction may be judged by the degree of haemolysis in this differential tube. Thus:

(*a*) A strong positive (+++) is signified by complete absence of haemolysis.
(*b*) A moderately strong positive (++) by partial but slight haemolysis.
(*c*) A weak positive (+) by partial but considerable haemolysis.
(*d*) A doubtful positive (?) by an almost complete haemolysis.

When, as will be shown below, an inhibition of complement by a serum is observed in both the antigen tubes (second and third) it is necessary that here the serum should be further tested in order to eliminate a possible false positive. It is known that a tuberculous but otherwise normal serum may, though rarely, give a positive Wassermann reaction, and, conversely, we have found that a strong luetic serum may yield a reaction with a tubercle antigen. Hence to distinguish one reaction from the other means have to be found whereby the disturbing factor, whatever it may be, can be eliminated. There are various ways by which the Wassermann reaction can be abolished, but these, we have noticed, will also remove the greater part, if not all, of the tubercle antibody. Thus, while heating at 62° C. for half an hour will, according to Sach, annul the reacting substance in a Wassermann serum—a statement, in our experience, not invariably true—heating also has a marked inimical effect on the tubercle antibody, and is therefore inapplicable as a differential test. To detect this cross fixation we have accordingly devised the following method, which has proved itself reliable. The suspected serum, whether previously inactivated or not, is mixed with an equal part of saline in a tube, and to each centimetre of the mixture two or three drops of chloroform are added. The tube is vigorously shaken for ten to fifteen seconds, and thereafter placed in a water-bath at 55° to 56° C. for fifteen minutes. For use, the supernatant fluid is drawn off and the test proceeded with as described above, only here the quantity representing one dose is 0.4 c.cm. (that is, 0.2 c.cm. neat

serum). From ten to twenty minutes after the sensitized corpuscles have been added the results are read. Where less haemolysis is observed in the tubercle antigen tube than in the syphilitic antigen one the serum is tuberculous, in addition to being luetic. If, on the other hand, the reverse is the state of haemolysis, the probability is that the serum is only specific, and not tuberculous.

Results of Investigation.

Our investigation deals with the examination of serums from 104 tuberculous subjects, and 220 controls. Of the tuberculous, in 57 cases tubercle bacilli were found in the sputum, and in 47 they were absent. Altogether 49 of the cases had received tuberculin treatment at one time or another of the disease. The controls consist of 100 positive and 100 negative Wassermann serums, and of 20 serums taken from persons clinically known to be free from tuberculosis. Consideration of space has induced us to give, in lieu of a protocol *in extenso*, merely a summary of the results arrived at, as set forth in the accompanying tables (III, IV, and V).

TABLE III.—*Summary of the General Results.*

Classification.	Total	T.B. in Sputum.		Injection of Tuberculin.		Results.			
		+	−	Yes.	No.	+++	++	+	−
T.P. Pulmonary ...	97	57		18		6	7	2	3
					39	26	4	4	5*
			40	25		5	7	8	5*
					15	4	3	6	2
T.B. Adenitis	4	−	4	4	−	3	1	1	−
T.B. Abdomen ...	1	−	1	1	−	−	1	−	−
Lupus	1	−	1	1	−	1	−	−	−
T.B. Dactylitis ...	1	−	1	−	1	−	−	1	−
Normal serum ...	20	−	−	−	−	−	−	−	20
Negative Wassermann serum	100	−	−	−	−	−	−	−	100†
Positive Wassermann serum	100	−	−	−	−	7	10	24	59

* Including 1 doubtful each. † Including 3 doubtfuls.

TABLE IV.—*Showing the Percentage of Positives in Tuberculous Cases treated and not treated with Tuberculin, and in Controls.*

	Positive Results.			Negative Results.	Per Cent. Positive.
	+++	++	+		
Tuberculous cases:					
With tuberculin	14	16	11	8	84
No tuberculin	30	7	11	7	87
Normal serum	—	—	—	20	0
Negative Wassermann serum	—	—	—	100	0
Positive Wassermann serum ...	7	10	24	59	41

All the positive Wassermann serums which were found to give a positive reaction in the test were further tested with the chloroform differential method, and in every instance the serums after treatment became negative. It may be stated here that this differential test has been applied, besides those cases just mentioned, to 30 specimens made up of known luetic and tuberculous serums, and with no exception all the serums remained positive. It is significant to note in the above tables that the results do not afford evidence of an effect which tuberculin, in the small doses as usually administered, has in the production of antibodies in the circulating blood, as judged by the reaction of the test, nor, it may be mentioned here, have we observed any relation between the strength of the reaction and the extent and severity of the disease. Interpreted according to the rules above formulated, arbitrary though they are, the results yielded may be expressed thus:

TABLE V.

Results.	Tuberculous.	Controls.
Strong positive (+++)	44	—
Moderately strong positive (++)	23	—
Weak positive (+)	22	—
Negative (−)	15	220
Total	104	220
Percentage of positives	85	0

The findings of the cases investigated therefore furnish 85 per cent. positives out of 104 tuberculous subjects. As none of the controls that have been examined reacted positively to the test, it may be justifiable to regard the test as specific, and where a reaction is provoked a diagnosis may be safely pronounced, not only that the disease is present, but also that the lesion is in an active condition. Here, as in the Wassermann test, a negative finding is significant, though inconclusive.

The non-specific reaction which other observers have found was due, we venture to suggest, to the presence of lipoids in their antigen and, in part, also to the tested serums being insufficiently heated. Even with our de-lipoidal antigen we have found it necessary, in order to avoid a false reaction, to heat the serums for at least two full hours at 55° C., the usual inactivation for half an hour at this temperature being, in our experience, inadequate for the purpose. Thirty of our positive serums were taken at random for quantitative estimation; in 13 the complement fixed was over 8 M.H.D.; in 7, between 6 and 8 M.H.D.; and in 10 between 4 and 6 M.H.D. The reaction here obtained is, on the whole, more pronounced than has elsewhere been recorded, and this we take to be due to the nature of our antigen, which, being free from lipoids, is more easily emulsified and consequently more favourable to interaction with its antibody.

This investigation is the outcome of the work which one of us is at present conducting on lipoid-free antigens, bacterial and otherwise, *in vivo* and *in vitro*, as means of diagnosis and treatment, and owes its inception primarily to the initiation by Professor James Ritchie of the study of the antigenic properties of lipoids. To him, for this and other valuable suggestions, we wish here to record our indebtedness. We would like also to thank Miss FitzGerald for kindness in supplying us with some of the Wassermann serums.

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WILL THE USE OF SCOPOLAMINE-MORPHINE IN LABOUR HELP TO IMPROVE THE BIRTH-RATE?

BY

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No one will gainsay that the present condition of the birth-rate is largely due to the express intentions of parents to limit their families. Sir Arthur Newsholme says "all the facts point to the conclusion that volitional limitation of the family is the chief and vastly predominant cause of the decline in the birth-rate which is taking place in so many countries."[1] Doubleday's hypothesis as to the influence of increased nutrition is at least so problematical as to be negligible, and Sir A. Newsholme discounts the theory of the inverse relationship between cerebral development and the capacity to procreate. We are mainly concerned, then, with the volitional element, and a rough classification of the grounds on which this is done

will help us to obtain a better perspective of the subject. We may therefore make the following broad grouping:

1. The love of luxury and ease, an attitude which may be described as a kind of passive resistance.
2. The desire to have only as many children as can be well provided for and adequately educated beyond the "starting-point" the parents had.
3. Eugenic grounds.
4. Fear of the actual parturition.
5. To these may be added another that is not immediately voluntary, but which will have a considerable influence in the near future. The increased prevalence of syphilis and gonorrhoea will cause a marked proportion of sterility.

As there can be no profitable discussion with passive resistance, and compulsion cannot be used, Group 1 may be dismissed. Moral suasion has been tried and has failed. Whatever one's broad opinion of Group 2 may be, it has at least some laudable basis. Regarding Group 3, it is doubtful whether there are more than a few hundreds in the whole country who limit their families on eugenic grounds alone. Although Group 5 is a purely medical concern, it will probably be long before the ravages wrought by venereal disease can be anything like repaired, and this group therefore furnishes an additional reason for addressing ourselves to the problem. Thus it is with Group 4 that this article will mainly deal, for the first three are entirely outside the scope of our art. The groups must not, however, be regarded as being distinct, to the exclusion of all other considerations. Probably all will overlap one or more other groups, so that those who advance 4 as their main reason for refusing maternity will perhaps also be swayed by the reason under 2.

The task of grappling with such a problem is formidable enough almost to make the nation shrink from facing it. On the other hand, we have done so much during these last few years that it is quite conceivable we may be in the right temper to overcome yet another obstacle.

For the practical purposes of this discussion, fear of the actual parturition is in the hands of the medical profession. The report of the late commission on the declining birth-rate states: "It is in the interests of the State as far as is practicable to remove all conditions —physical, economic, or social—which make parenthood an almost intolerable burden, especially on the mother."[2] And, again, speaking of the fear of parturition, it says: "They (that is, women) may be assured that medical knowledge and skill can so relieve travail that it can be made at least bearable."[3]

This fear of parturition is a very potent factor in the decline of the birth-rate as any one who goes to the trouble of inquiring will very quickly discover. The reason is simple. In no civilized nation can parturition be regarded as a "normal and physiological process." It is an event looked forward to with misgiving, and, moreover, fraught with tremendous pathological possibilities. My thesis now is that few labours can in any sense be called normal, and although this may not be expressed in exact terminology by women, it is the knowledge of the fact itself that has given rise to so widespread a fear of parturition. The accompanying and inevitable pain is the factor that appeals to them—hence the fear. It is certain we have hitherto failed to appreciate how general is this fear and what vast numbers are refusing maternity on this plea alone or nearly so.

It has often been said that parturition is not nearly as bad or dangerous as an acute attack of renal colic or appendicitis. This is no doubt partially true, but I have just interviewed a patient whose first words were to tell me her first labour lasted forty agonizing hours, at the end of which time she was grateful for the application of forceps without chloroform. This is far from being an isolated case in my experience, and it is this that is making women take advantage of the knowledge of contraceptives. Even if we admit parturition to be more bearable than some acute diseases the comparison is faulty, for, in the present state of our knowledge we must usually submit to such an attack as inevitable; nor is the patient aware of the impending ordeal before its onset; there is nothing deliberate or voluntary about it. It is here, therefore, the supposed analogy and the comfort it is intended to give completely fail. With the present knowledge of contraceptives among even the poorest people, pregnancy, with its resulting labour, is a purely voluntary condition in a large percentage of cases. Not even the most Spartan would deliberately invite acute cholelithiasis; considering the pathological character of a large number of labours, can we wonder that women who have a knowledge of its prevention are only too ready to use it? Therefore the point I have to urge is that if we have a means at our disposal of dispelling this fear of parturition we shall have gone far towards arresting the present alarming decline in the birth-rate.

It is only natural that the profession before discarding the time-honoured administration of chloroform in favour of scopolamine-morphine, and so allowing a far more extended use of a method of relieving the pains of labour, should be satisfied as to the safety of the supplanting method. In spite of the adverse criticism of a few eminent obstetricians, the verdict of a very large number who have used it fairly is that it is all it claims to be if administered with reasonable care and skill. But it is quite true that it demands time, and probably relatively few practitioners will be prepared to devote this time to it.

It is not possible to discuss fully the question of safety at present—I have done this exhaustively elsewhere[4]—the following remarks must suffice. In a series of over 400 cases the stillbirths have been under 2 per cent., as against a general average of 2½ per cent. This represents a reduction of one-fifth in stillbirths, or 20 per cent. These stillbirths included such complications as premature detachment of the placenta, a difficult breech presentation with considerable delay of the head, another breech presentation with a large hydrocephalus which necessitated perforation, one macerated fetus, and the like. On the other hand, among the successes may be mentioned a Caesarean section, some twenty-five cases of severe albuminuria in which every child is alive (one mother was a primipara aged 49), and a large number of premature labours, spontaneous and induced. This is a record which no amount of theoretical criticism can destroy, and in particular the absence of ill effects on premature children is instructive and suggestive. One patient had had two stillborn children before, in neither instance was scopolamine-morphine administered; the third child was born under scopolamine-morphine and is alive and well. Several others have had one stillborn child, while the second and third, under scopolamine-morphine, are alive and well. These cases emphasize the contention that the method is safe if overdosing be avoided. All the foregoing is amply borne out by Dr. Cecil Webb-Johnson in his book *Twilight Sleep in the East*, and it may now be accepted as proved that the method is safe.

Thus far, then, we have reached the conclusions that the birth-rate in this country is in a very serious condition; that one potent factor is the fear among women of the actual labour; that this fear is by no means baseless, but has its origin in the pain and undoubted pathological character of the majority of labours; that the use of scopolamine-morphine entirely abolishes this fear, and has no counterbalancing evil results.

I must now draw attention to a significant fact. Of my own cases at least 7 per cent. were induced to submit to that particular pregnancy by the knowledge that they could have the labour conducted under scopolamine-morphine. At first sight this may not seem to be a great many, but on the modest assumption that it were possible for a million potential mothers to be assured of this treatment, we should have an increase of 70,000 births. The true percentage is in all probability greater than this, but is not even this worth an effort and a sacrifice?

The question is, How is this end to be attained? Coercion in a matter of this kind cannot be applied to the profession. Many cannot afford the extra time demanded for the administration of scopolamine-morphine; many have not the inclination; many of the poorer people could not pay the increased fee which every doctor would rightly consider his due. Is there no solution of the difficulty? I believe a great majority of the profession would be glad to be rid of their maternity work, either because of their distaste for it or because it interferes seriously with other work. If this is so, and the question of the birth-rate is so vital to the country, why cannot the State bestir itself and take over this work in the national interest? They would get those who are deeply interested in the work and

who are prepared to be expert in it. The results would justify their venture. Public health work is for all intents and purposes a State institution now; there has been some talk of taking over the hospitals (a much more difficult and perilous undertaking). We spend an enormous sum every year on hospitals or homes for incurables and on asylums for maintaining thousands upon thousands of hopeless lunatics. It is not suggested these should all be destroyed, though many thoughtful people have strong opinions on the subject. But if all this expenditure on perfectly useless life is considered legitimate, how much more legitimate would be an expenditure on the production of new life in the shape of an increased birth-rate?

I do not propose any elaborate scheme but merely an outline which may serve as a basis for discussion. Only the matter ought to be faced *now*, and not allowed to drift into another generation. First of all, we cannot admit any class distinction; rich and poor must equally feel they can have the advantage of scopolamine-morphine if they wish, so that we may hold out the inducement to all. To the large number who have refused maternity solely or mainly on account of the ordeal we may then say, "Your objection has been overcome, and you may now enter on pregnancy without the least fear."

The scheme in view would be the establishment in all large towns, in some very quiet part, and perhaps in certain other centres, of a combined midwifery hospital and home. Half, or some such proportion, of the beds could be reserved for those who could well afford to pay adequate fees, the remainder for those who perhaps could not afford any fee. It might even be practicable to have an intermediate grading. At all events the income from the one part would go largely towards maintaining the whole institution, and the burden on the State would, I venture to think, not be so great after all. The patients in the one part would have a bedroom each where the labour would be conducted. There would be one or more dining-rooms, as needed, common to this part. The others would be in rooms each of which would accommodate four to half a dozen beds, and to each of which would be attached one small lying-in room where the labour would take place. As for staff, one nurse can quite easily and efficiently attend to two patients in the better-to-do section if they are in contiguous rooms, an extra fee being charged if a patient preferred a nurse exclusively. In the small ward-rooms a nurse could easily manage one with some additional help from a probationer. There would be a superintendent obstetrician with assistants, the number of whom would be governed by the size of the institution. The success of it all would depend upon the enthusiasm of the staff, and only those in sympathy with the work would undertake it. This would be a very different matter from public opinion trying to coerce every practitioner into using scopolamine-morphine regardless of his individual objections, which might be perfectly valid.

I believe any Minister who had the courage to initiate and carry out some such scheme would deserve more than ever the country could repay him. The field is white unto harvest, only the implements and the reapers are needed.

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THE CURE OF MULTIPLE WARTS ON THE FACE.

By CHARLES IND, M.D.,
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THE removal of these tiny growths, judging by what I have witnessed, is often very difficult.

A recent patient's troubles have been the means of my devising a plan, a combination of two methods suggested separately by other dermatologists, which seems to give a speedy and admirable result.

A man, aged 35, had had the warts for eleven years. He had seborrhoea sicca of the scalp, and suffered from an extreme grade of seborrhoea oleosa of the body and face; the latter I consider not unimportant as far as the etiology of the warts is concerned.

The warts were of the variety known as verruca plana juvenilis (Stelwagon), tiny roundish bodies situated on the forehead and closely set, especially as they neared the hair border. On the forehead there were about ninety at least. There were several dozens also on the scalp anteriorly. They were all of the above variety. One or two increased in size, and rarely two or three would coalesce; but in the main they remained discrete. Those on the scalp were yellowish and slightly vascular, whilst those on the forehead were pale and rounded, not very easily seen unless looked for sideways.

For the whole eleven years the patient had had treatment by dermatologists and doctors, but the number of warts did not show signs of diminishing. Internally he had had lime, thyroid extract, magnesium sulphate, and arsenic, also citric and other acids. He had also undergone electrolysis, and had had ionization with magnesium sulphate, and also with sodium salicylate, but without any result, good or bad. Locally, nitric acid had been used, and had scarred him badly. Glacial acetic acid and trichloracetic acid had also been used. The warts were destroyed by these methods and did not recur, but usually more appeared later near the site of local treatment.

The various spirit-soaps, and lotions of resorcin, sulphur, and mercury perchloride were of no use; ointments of salicylic acid and sulphur gave extremely bad results, and the patient refused to go on with them. Salicylic plaster seemed of some service, but it is unsightly and attracts attention.

Acting on the belief that warts are infectious the patient wore a removable lining to his hat, which was changed each day, and the warts were simply cut off by a sharp instrument; results were not very satisfactory and recurrence frequently followed.

Stelwagon[1] recommends the use of a saturated alcoholic solution of salicylic acid, but says that it often fails to cure. By itself it did fail; but followed by abscission it was surprisingly effective. The warts and skin around were painted three times a day for one day with this liquid. On the following morning they were cut off by a flat sharp steel instrument, bevelled on one side only; this passes freely over the healthy skin, but when it comes to the wart cuts it off, leaving a slightly bleeding point. The surface is painted at once with the salicylic solution and twice more later during the same day, three times in all. This turns the little red points to a brownish-black colour, tiny scabs form which are allowed to drop off, taking about a week to do so, and leaving a perfectly clear healthy skin. The forehead is bathed with pure alcohol once a day until the scabs have all dropped off.

1. A razor is no use, a sharp flat instrument *pushed* over the skin is necessary.
2. Paint three times the first day and after abscission three times on the second.
3. There is neither pain nor scarring.
4. Sepsis does not occur.
5. The treatment is useless for larger warts.
6. The use of the salicylic solution prevents pain when the warts are cut off and recurrence afterwards.

REFERENCE.

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Croonian Lectures

ON

THE SIGNIFICANCE OF THE CEREBRAL CORTEX.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON, JUNE, 1919.

BY

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LECTURE IV.

(Abstract.)

THE conditions revealed in the earliest fossil reptiles that have definitely taken the line of development leading toward mammals enable us to draw the inference that the hypopallium (neostriatum) and the neopallium came into existence simultaneously. But in the ancestors of the reptiles at present living the new cortex consisted mainly of hypopallium, whereas mammals cultivated both the new cortical formations. When the hypopallium, bulging into the lateral venticle, filled up the limited space available in the reptilian brain progress in cerebral development was brought to a sudden stop. In mammals, however, the neopallium, lying upon the surface of the hemisphere, was

free to expand and develop those higher attributes which have made it the organ of the highest intelligence.

Both the hypopallium and the neopallium were differentiated to receive the suddenly increased influx of thalamo-cortical fibres which for the first time secured for senses other than smell an adequate representation in the cortex and a correspondingly increased influence over the animal's behaviour.

It helps us to understand the mechanism of the neopallium, the true cerebral cortex, if we compare the three cortical formations built up in the fore-, mid-, and hind-brain respectively from the receptive nuclei of the olfactory, optic, and vestibular nerves.

The cerebellum is an overgrown part of the vestibular nucleus; it is a mechanism which enables the effects produced by stimulation of the semicircular canals to be influenced by the conditions existing in all the muscles, joints, and skin areas of the body, so as to co-ordinate the whole muscular system to perform orderly movements for the purpose of correcting disturbances of equilibrium. But the linking up within the cerebellum of all the mechanisms which receive information from the various muscles and the building up of complex systems of nervous elements makes the organ the instrument for co-ordinating all complex and extensive movements, irrespective of whether they are concerned with equilibration or not. This cerebellar mechanism is made use of by the mid-brain and the fore-brain to co-ordinate the muscular actions which they excite.

The tectum of the primitive mid-brain contains nerve cells with widely branching dendrites, which collect into the same channel impulses coming from the eyes, the otic vesicle and lateral line organs, and the sensory nerves of the skin—all bringing information concerning the spacial relations and movements of objects in the outside world. This makes the tectum the great director of the animal's locomotion; and by means of the link established by the red nucleus the tectum can make use of the cerebellar apparatus to co-ordinate the muscles to perform the actions which it directs.

The primitive cerebral cortex had functions of a very different kind from those of the tectum and the cerebellum. It was originally the organ for appreciating the nature—the attractiveness or unattractiveness—of objects that affected the sense of smell. It was therefore the chief arbiter of the animal's behaviour; and the movements which it initiated were directed and co-ordinated by the tectum and the cerebellum. The architecture of the vertebrate brain was determined by the normal sequence of events in the primitive animal. The creature was led by smell, the organs of which were installed in the fore brain; directed by vision and the other senses, the instruments of which were connected with the mid-brain; the resulting movements were co-ordinated by the cerebellum in the hind-brain; and the consummation of the conscious experience led to the stimulation of the gustatory nuclei in the medulla oblongata, and the initiation of a complex series of unconscious visceral processes.

In the first lecture an attempt was made to explain the nature of the functions performed by the primitive cerebral cortex. It is the instrument by means of which the affective tone of the sense of smell gives coherence to a complicated sequence of events, so that all the incidents in a long and varied series of experiences are united to form part of a consecutive consciousness. Moreover, it provides the germ of the important aspect of consciousness whereby such sensations are projected and referred to happenings in the outside world. Our conceptions of coherence in space and time depend upon the activity of the fully developed cerebral cortex or neopallium.

But the primitive cortex is almost entirely devoid of the means for appreciating spacial relations. It only acquires such powers when the sensory tracts proceeding from the eyes, the vestibular apparatus, the muscles, joints, and skin, convey to it, in adequate degree, the information that is essential for such appreciations, after it has been integrated upon lower physiological levels. The new cortical formations in the Amniota are the expression of these new potentialities. The hypopallium or neostriatum is a crude and imperfect instrument for providing these spacial controls; the neopallium is the more perfect instrument, because it provides the means for a fuller development of those physiological dispositions by which discrimination and projection are rendered possible.

When it is realized that the tectum of the mid-brain is the recipient apparatus, not only of visual impulses conveying information as to movements of objects in space, but also of rhythmic wave movements either of water or air, and also of such impulses as ascend for the general sensory nerves, it is not altogether surprising to find that "the loss of power to appreciate serial movements in space is associated with inability to respond to the vibrations of a tuning-fork" (Head).

In the lowlier vertebrates these sensory impulses are integrated on the physiological level of the tectum, so as automatically to regulate movement; but in mammals there is also a psychical integration of such influences, which results from the physiological processes in the neopallium.

The conscious appreciation of succession, both in space and time, is strictly dependent on past events which have left their records in the neopallial mechanism. As Dr. Head expresses it, "every recognizable change in posture enters consciousness already charged with its relation to something which has gone before, and the final product is directly perceived as a measured postural change. This is the case with all the higher projectional aspects of sensation; they form a continuous series of physiological dispositions determined by previous events of a like order."

In the tectum we can study the foundations of the mechanism which makes such physiological dispositions possible. But not until the complex superstructure of the neopallium was added to the brain was it possible for the animal to acquire, in the full measure required for the learning of skilled actions, the conscious recognition of posture and movements, and the possibility of building up the physiological dispositions which, though not accessible to consciousness, are essential for the conscious appreciation of posture and movement.

When the mammalian neopallium acquired this power of appreciating spacial and postural relations it assumed direct control of voluntary movements, and the cerebro-spinal or pyramidal tracts and the cerebro-cerebellar connexions were established for the first time. The ability to recognize and measure the extent of movements made it possible the more precisely to control and regulate such movements. The acquisition by the neopallium of the power of learning to perform complex skilled actions was possible only because the sensory and visual cortex provided it with the postural information and the physiological dispositions without which such functions were impossible. In the train of these events the animal with a neopallium (more especially the Primates) gradually learned to form ideas of the size, shape, weight and texture of objects and of their position in space.

The influence of the arborial mode of life in stimulating the attainment of such ability not only in the Primates, but also in the earliest mammals, was discussed.

In conclusion, the lecturer explained that his chief aim in these lectures had been to attempt to discover how the intellectual functions of the cerebral cortex had been acquired. Biologists and physicians in the past had shown a strange reluctance boldly to face the problem that the real functions of the cerebral cortex were of a psychical nature. It is as futile to discuss the significance of the cerebral cortex without considering its intellectual functions as it would be to try to interpret the structure of an aeroplane without reference to the fact that it was meant to fly. Hence in these lectures attention had been concentrated chiefly on the attempt to explain the real work which the cerebral cortex was devised to perform.

GOOD progress is being made with the erection of the new Rockefeller Hospital and Medical Schools in Peking, the corner stone of which was laid on September 24th, 1917, by Mr. Fan Yuan-lien, Chinese Minister of Education. The site covers an area of ten acres. An adaptation of Chinese architecture has made it possible to use Chinese materials almost exclusively and to give to the buildings, in addition to the scientific and practical requirements for which they are intended, beauty of design in harmony with the great monuments in Peking. The beauty of the buildings has been increased by a Chinese treatment of courtyards, gateways, and walks. The grounds contain fine trees, many of which will be saved, together with a typical Chinese rock garden, which will harmonize with the scheme.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ABDOMINAL OR BILOCULAR (?) HYDROCELE.

I was interested in reading Dr. Coleman's account of the huge hydrocele, on page 629 in the BRITISH MEDICAL JOURNAL of December 7th, 1918. In May, 1902, I published in the *Australasian Medical Gazette* (page 258) the particulars of a similar case, illustrated with profile and frontal photographs. The patient was a youth of 17 years of age, the side affected the right; the testicle on that side had been injured three years before. There was an ordinary hydrocele on the left side containing fourteen ounces. The abdomen presented the appearance of one containing a large abdominal tumour. The navel was prominent. On incising the right sac the diagnosis of a huge hydrocele was confirmed by free escape of fluid and reduction in size of the abdominal tumour. The abdomen was not opened, the sac walls were sutured to the scrotal wound and a drainage tube inserted. In a few days the upper part of the sac had well contracted. Recovery was uneventful. Later the left hydrocele was opened, and, the sac being very thick, radical cure was effected by excision of as much sac as possible.

I cannot quite agree with Dr. Coleman's nomenclature. "Abdomino-scrotal hydrocele" would be better. "Bilocular" is misleading, as the hydrocele sac is not loculated, but is one single cyst constricted in the inguinal canal.

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Sydney.

THE ARREST OF BLEEDING IN CERTAIN DISEASES OF THE BLOOD.

THE following method has been found effective in small wounds, such as punctures for blood examination or small cuts, when the patient's blood has been deficient in powers of coagulation and bleeding has been persistent and dangerous.

As the patient's blood will not coagulate in the wound, it is necessary to apply blood that will. The bleeding point is held firmly and exposed between the fingers and thumb of one hand. It is then dried thoroughly, the pressure of the fingers and thumb preventing fresh non-coagulable blood from washing away the coagulable blood after application. The thumb of another individual whose blood is normal is pricked in the ordinary way for obtaining a blood film, and the drop of blood resulting is placed directly on the bleeding point. Pressure in the neighbourhood of the wound is maintained till the drop of blood coagulates, and may then be relaxed without fear of further bleeding. It is hardly necessary to add that the patient should be warned against knocking off the coagulated drop.

WM. GEMMILL, M.B., F.R.C.S.,
Major R.A.M.C.(T.C.).

Musselburgh.

Reviews.

RURAL HOUSING.

THE chronic problem of rural housing has now become acute. Insanitary cottages all over the country have been closed or destroyed in large numbers; owing to the more urgent constructional problems set us by the war, the building of new cottages and the repair of old ones have inevitably been neglected for the last few years. On all sides the cry for more homes, and more attractive homes, for farm labourers goes up. Dr. W. G. SAVAGE,[1] Medical Officer of Health for the County of Somerset, has written an excellent book on the subject which may be warmly recommended to all who wish for enlightenment upon the many questions it presents for solution. The first chapter gives an account of the development of the problem, which dates from the middle of the eighteenth century. Next the rural housing laws are described and the existing housing conditions, with some practical details as to the conversion of insanitary houses into satisfactory dwellings. An account of the housing survey (ordered by the Local Government Board in the Housing Act of 1909) and what may be expected of it and how it may hope to surmount the difficulties presented by the small owner or owner-occupier of cottage property, forms most interesting reading; it is followed by an excellent chapter on the causes and effects of the prevalent shortage of small houses in the country. Other chapters deal with the inadequacy of the law as it was to remove the shortage, on the requirements of new cottages in rural areas, and the harm wrought by bad ventilation, overcrowding, and the like. Finally Dr. Savage gives his own solution of the rural housing problem, which must, he says, be solved without delay if the present migration of the agricultural population to the towns or colonies is to be checked. This problem may be stated as follows: Existing cottages are wearing or have worn out; economic causes prevent private enterprise from erecting more cottages in anything like sufficient and compensatory numbers—to say nothing of the provision required for the thousands of ex-soldiers who are expected to take up agriculture as a trade, or of the 30,000 new houses that will be wanted if the two million additional acres of grass land are to be ploughed up in order to make our country more self-supporting.

The local authorities have been unwilling to exercise their powers of building because the loss would fall on the rates, and this has contributed to a disposition shown in many areas by the best of the agricultural working classes to emigrate either to the towns or overseas. The new Housing Bill promises an Exchequer grant for the relief of local authorities, and it is possible to hope that the exodus may be checked, even if the current is not wholly reversed, within the next decade. Dr. Savage thinks that the increase in the wages of agricultural labourers will contribute to produce the desired result, and we can all only hope that his forecast will be fulfilled. He writes clearly, shortly, and with obvious competence. His book is well illustrated, and should be read by all the wide circle of those interested in the rural housing problem, whether practitioners of medicine or laymen.

NERVOUS DISORDERS AND DISEASES.

The book in the *Collection Horizon* on treatment of the psychoneuroses of war,[2] by Drs. ROUSSY, BOISSEAU, and D'OELSNITZ, is a sound and practical exposition of the clinical aspect, treatment, and pathogenesis of the psychoneuropathies of war; herein are included cases of hysteria, of neurasthenia, of psychasthenia, and cases of mild confusion and melancholia. The treatment advised is psychotherapeutic; persuasion is its chief instrument. First the patient is "prepared" by being persuaded that he is curable and sure to be cured; next he is "treated," at the right moment, by persuasion, eked out if necessary with faradization; finally, the cure thus effected is "fixed" or consolidated. The volume is clearly written, and should be in the hands of all who have to deal with cases of war neuroses. Dr. H. BROWN'S volume on *Advanced Suggestion (Neuroinduction)*[3] gives a general account of the good results he has obtained with psychotherapy in all sorts of conditions of disorder and disease, mental and otherwise, without hypnosis, but with careful instruction in relaxation followed by intelligent suggestion. It is a book for medical men. Dr. R. S. CARROLL'S *The Mastery of Nervousness*[4] is a book for the layman, and may perhaps be described as a guide to living and thinking sensibly, not without the platitudes that make easy reading for the public. Dr. CORIAT'S *What is Psychoanalysis?*[5] gives, in the form of questions and answers, an outline of what is attempted in this method of treating neuroses, such as those due to repressed emotions and unsatisfied instincts.

Miss M. MACDOWALL'S booklet on the *Training of Mentally Defective Children*[6] gives full details of the

[1] ***Rural Housing.*** By William G. Savage, B.Sc., M.D.Lond., D.P.H. With a chapter on the After-War Problem. London: T. Fisher Unwin Limited, 1919. (Demy 8vo, pp. x + 297; 32 figures. 7s. 6d. net.)

[2] ***Traitement des Psychonévroses de Guerre.*** By G. Roussy, J. Boisseau, and M. d'Oelsnitz. Collection Horizon. Paris: Masson et Cie. 1918. (Cr. 8vo, pp. 191; 12 plates. 4 fr.)

[3] ***Advanced Suggestion*** (Neuroinduction). By Haydn Brown, L.R.C.P., etc., Edin. London: Baillière, Tindall, and Cox. 1918. (Cr. 8vo, pp. viii + 342. 7s. 6d. net.)

[4] ***The Mastery of Nervousness.*** Based upon Self Re-education. By Robert S. Carroll, M.D., Medical Director, Highland Hospital, Asheville, North Carolina. New York: The Macmillan Co. 1918. (Post 8vo, pp. 348. 10s 6d. net.)

[5] ***What is Psychoanalysis?*** By Isador H. Coriat, M.D., First Assistant Visiting Physician for Diseases of the Nervous System Boston City Hospital. London: Kegan Paul, Trench, Trubner, & Co., Limited. 1919. (Cr. 8vo, pp 124. 3s. 6d. net.)

[6] ***Simple Beginnings in the Training of Mentally Defective Children.*** By Margaret Macdowall. London: Local Government Press Co. (R. J. Leach). 1919. (Cr. 8vo, pp. viii + 116; illustrated. 3s. 6d.)

methods which, combined with infinite patience, have proved effective in training and improving the mental calibre of young imbeciles. It should be in the hands of all who have to look after low grade defectives.

Captain BALLARD'S *Epitome of Mental Disorders*[7] is a short and didactic textbook for practitioners and assistant medical officers in asylums and hospitals for the insane. It is well arranged and written, and devotes adequate space to the subject of treatment; it may be recommended to the attention of those for whom it has been designed. The fourth edition of Dr. YOUNGER'S *Insanity in Every-day Practice*[8] sets out the broad outlines of insanity; it is short and compendious, easy to read, and likely to be of great service. Dr. WHITE'S *Principles of Mental Hygiene*[9] gives a general discussion of the best methods of dealing with the problem of insanity and its allied and borderland states. It deals in generalities, and the maladjustments between man as a social animal and the society in which he moves. Dr. HART'S lecture on *The Modern Treatment of Mental and Nervous Disorders*[10] contains a popular and general review of the subject and a plea for the psychologist in treatment and research here.

NOTES ON BOOKS.

IN *The War Work of the Y.M.C.A. in Egypt*[11] Sir JAMES BARRETT applies his fluent pen to the task of describing and annotating the organization, objects, and methods of the Y.M.C.A. as exemplified by its work in connexion with the army in Egypt. His claim to act as historian and critic rests on the fact that he witnessed the initiation of the work of the Y.M.C.A. in Egypt at the beginning of the war, and thenceforward had it more or less under daily observation, and was himself a sort of liaison officer between the Army Medical Service and the Y.M.C.A. This tribute to the single-minded and devoted men and women who did such fine work for the troops, "but who never let their hearts run away with their heads," is endorsed by General Sir Edmund Allenby in an appreciative preface.

Dr. H. B. WOOD'S *Sanitation Practically Applied*[12] is written for the benefit of readers of all classes, medical or no. It contains a dozen chapters on such important topics as statistics, child welfare, water supplies, sewage disposal, and so forth, written on broad lines and without technicalities that would make it unintelligible to the general reader.

[7] *An Epitome of Mental Disorders*: A Practical Guide to Aetiology, Diagnosis, and Treatment. For Practitioners, Asylum, and R.A.M.C. Medical Officers. By E. Fryer Ballard, M.B., B.S.Lond. London: J. and A. Churchill. (Demy 8vo, pp. xv + 211. 6s. net.)

[8] *Insanity in Every-day Practice*. By E. G. Younger, M.D.Brux., M.R.C.P.Lond., D.P.H., etc. Fourth edition. London: Baillière, Tindall, and Cox. (Cr. 8vo, pp. x + 134. 5s. net.)

[9] *The Principles of Mental Hygiene*. By William A. White, M.D. New York: The Macmillan Co. (Cr. 8vo, pp. xiv + 323. 10s. 6d. net.)

[10] *The Modern Treatment of Mental and Nervous Disorders*. A Lecture delivered at the University of Manchester on March 25th, 1918. By Bernard Hart, M.D. Manchester: At the University Press. London: Longmans, Green, and Co. 1918. (Cr. 8vo, pp. 28. 1s. net.)

[11] *The War Work of the Y.M.C.A. in Egypt*. By Sir James W. Barrett, K.B.E., C.B., C.M.G., M.D., M.S., F.R.C.S.Eng., temporary Lieut.-Colonel R.A.M.C. London: H. K. Lewis and Co., Ltd. 1919. (Demy 8vo, pp. xx + 212; 23 plates; 3 maps. 10s 6d. net.)

[12] *Sanitation Practically Applied*. By Harold Bacon Wood, M.D., D.P.H., Assistant Commissioner, West Virginia State Department of Health, etc. New York: J. Wiley and Sons Inc. London: Chapman and Hall, Ltd. (Demy 8vo, pp. vi + 473; illustrated. 13s. 6d. net.)

THE VITAL STATISTICS OF ENGLAND AND WALES, 1901-10.

THE third part of the supplement to the seventy-fifth annual report of the Registrar-General which has recently appeared* is a volume of more than 900 pages, 747 being devoted to abstracts of the records in the 634 registration districts. The abstracts are similar in form to those published in earlier supplements, but the list of causes of death has been extended and sex mortality is tabulated in detail; a useful addition is a table showing the deaths in public institutions of registration districts the rates of mortality for which are gravely affected by the inclusion of deaths of non-residents. The abstracts are preceded by a general review of the vital statistics, enriched by many tables which have no counterparts in earlier publications.

* Cd. 8002.

The Marriage and Birth Rates.

The marriage rate per 1,000 single and widowed males aged 15 years and upwards, which was 60.9 in 1861–70, fell to 53.6 in 1891–1900, and fell further to 51.6 in 1901–10. The crude birth rate, which was at its highest point in the decennium 1871–80—namely, 35.4 per 1,000—had fallen to 29.9 in 1891–1900 and reached 27.2 in 1901–10. The legitimate birth rate per 1,000 married women aged 15 to 45 declined rather faster than the crude birth rate and was, in 1901–10, 75 per cent. of the maximum value. There is now little difference between the standardized birth rates of urban and rural counties. The difference between the contrasting groups, which stood at 2.46 per 1,000 in 1881–90, was 1.77 in 1891–1900 and only 0.57 in 1901–10. Fertility has been lower south and east of a line from the Bristol Channel to the Wash than to the north and west.

The rate of decline in the more recent period has been generally greater than before, but in the Home Counties it has been retarded, as has happened also in the extreme north (excepting Westmorland). Dr. Stevenson remarks that "such differences in distribution seem to point to local variations from time to time in the strength of factors causing decline of fertility, and so to suggest rather the spread of a custom than the effect of a natural law." This is further supported by the increase in the proportional fertility of those English and Welsh counties which in 1911 had over 10 per cent. of their total males working as miners. In only one case, and that the county containing the smallest proportion of miners, was the ratio of the standardized birth rate to that of England and Wales less than in 1881–90. For instance, in 1881–90 the standardized birth rate of Durham was 107 per cent. of the all England rate for the decennium, in 1891–1900 it was 110 per cent. of the corresponding rate, and in 1901–10 it was 117 per cent. It is plain that the causes of reduced fertility apply less to coal mining counties in whatever part of the country they are situated than to others.

The standardized death rate of 1901-10 was 16.6 per 1,000 for males and 13.9 for females, respectively 73.8 per cent. and 67.1 per cent. of the corresponding rates for 1841–50; the decline has been both relatively and absolutely much greater in the last decennium than during any previous period. Thus the male rate in 1881–90 was 20.0, and only declined to 19.5 in 1891–1900; the fall in the past decennium was nearly equal to the difference between the rates for 1891–1900 and for 1861–70. The improvement has been greater in women than in men. In 1841–50 the male death rate was 109 per cent. of the female rate, in 1891–1900 it was 117 per cent., and in 1901–10 119 per cent. Equality of mortality between the sexes at 35 to 45 in 1841–50 has been converted into a male excess of 22 per cent. in 1901–10; a female excess of 6 per cent. in the age group 25 to 35 sixty years ago has become a male excess of 17 per cent.

An important factor of this change has been the greater relative decline of tuberculosis amongst females, but that this is not the whole explanation is proved by the fact that the females still have some advantage when tuberculous diseases are excluded from the comparison. At ages 25 to 35, the male death rate (excluding tuberculosis) was 103 per cent. of the female rate in 1851–60, and 110 per cent. of the corresponding female rate in 1901–10.

Turning to the regional distribution of mortality, the rates were usually lower in counties in which the greatest proportion of the inhabitants were in rural areas; there are, however, important exceptions. The twenty registration counties with the lowest mortalities included eight with a preponderance of urban population; one, Middlesex, had 96 per cent. of its population in town areas. The twenty counties with highest mortalities contained six, all belonging to Wales, with a majority of their population in rural areas. All the metropolitan counties other than the county of London itself, returned mortalities low in proportion to the degree to which their population was made up of town dwellers, partly because they consisted of the outlying suburban populations of a great urban area, the central and less healthily situated portion of which occupied a low place (forty-seventh out of the fifty-five counties). The counties of highest mortality were all important coal mining centres; since occupational records show that coal mining does not lead to undue mortality at working ages, it appears that attendant circumstances are

peculiarly unfavourable, an inference which is relevant to the recent discussion of housing conditions in mining districts.

Infant and Child Mortality.

In the decennium 1901–10 infant and child mortality declined enormously. In 1841–50 the deaths under one year per 1,000 births were 153, and the same rate obtained in 1891–1900; in 1901–10 the proportion was 128. The mortality under age 5 per 1,000 living was 66 in 1841–50, 57.7 in 1891–1900, 46.0 in 1901–10. The remarkable fall commenced in 1902. Diarrhoeal diseases, tubercle, convulsions, and bronchitis are the causes of chief numerical importance in the mortality from which substantial reductions have occurred.

Mortality among infants and children in the predominantly urban groups of counties has been 30 per cent. greater than in the corresponding rural group among legitimate and 50 per cent. greater among illegitimate infants. The disadvantage was relatively greater in the last nine than in the first three months of the first year of life. The lowest rate recorded for the whole of the first year was returned by the rural county of Wilts; the two next best were Dorset and Hertford. Lancashire, Nottingham, Glamorgan, and Durham had the highest rates. A comparison of mortalities in rural counties brings out the extremely unfavourable position of the Welsh rural counties, which recalls the point noticed above as to the attendant circumstances of mining, since 14.6 per cent. of the males over ten in the Welsh counties worked in mines or quarries, and only 3.2 per cent. of the males in the English counties with which a comparison was instituted.

Tuberculosis.

The death rates from all forms of tuberculosis and from phthisis declined 18.6 per cent. and 19.4 per cent. between 1891–1900 and 1901–10. In the fifty years from 1851–60 tuberculosis mortality has been nearly halved in males and more than halved in females. The death rates at ages have in certain groups changed their sex ratios in a remarkable way. At every age over 15 the females have improved faster than the males; at ages over 35 the difference is astounding. In 1851–60 the male mortality at 35 to 45 was 96 per cent. of the female mortality; in 1901–10 it was 153 per cent. At 45 to 55, 122 per cent. has become 202 per cent.; at 55 to 65, 138 per cent. has increased to 217 per cent. Taking standardized rates (all ages), and calling that of males in 1851–60, 100, the female rate for 1851–60 was 106; the corresponding figures in 1901–10 were 50 and 35. The difference between male and female rates was much greater in the urban than in the rural counties, being (1901–10) 133 per cent., 161 per cent., 220 per cent., 243 per cent. for successive decennial age groups from the age of 25 in the urban; 119 per cent., 132 per cent., 163 per cent., 165 per cent. in the rural counties. At ages 15 to 20 and 20 to 25 the mortality from phthisis of women in urban counties was below that of the rural counties, and the same held for males aged 20 to 25. A partial explanation is afforded by the migration of young healthy adults from country to town in search of work. Better material for testing this is afforded by the annual reports since 1911, when the deaths of non-residents were transferred to the place of origin. In 1911 the female death rates from pulmonary tuberculosis were higher in the rural districts in the age groups 20 to 25, 25 to 30, and 30 to 35. The proportions of females living in each of these age groups to the number aged 0 to 5 are much smaller in the rural districts than in England and Wales as a whole; if the disturbance of this proportion be regarded as a measure of emigration from country to town, and if the migrants be assumed not to suffer from tuberculosis, the recorded rates can be corrected, and we find that an application of the method to the data of 1911 suffices to raise the urban above the rural rate in these age groups.

With respect to the excessive urban mortality of males at older ages, it is tempting to attribute it to industrial employment, the phthisis death rate being well known to be excessive amongst males employed in such industries as printing and shoemaking, which are now mainly pursued in urban centres.

Increased Rates for Cancer and Diabetes.

In the decennium 1901 to 1910, 309,141 deaths were ascribed to cancer or malignant disease, giving a standardized death rate of 867 per million, 13 per cent. higher than in the previous decennium. This and diabetes (the death rate from which increased from 77 to 93 per million) are among the few causes of death which show a rapidly increasing mortality. How far improved accuracy of registration is involved is a point often dealt with in the annual reports.

Suicide.

Suicides also were both absolutely and relatively more frequent; the rate per million (persons) was 107 in 1871–80, 119 in 1881–90, 134 in 1891–1900, and 146 in 1901–10.

Natural Increase of Population.

The rate of natural increase of the population in 1901–10 was very slightly higher than in 1891–1900 (11.8 per 100 against 11.7) and nearly as great as in 1851–60 (11.9), the declining birth rate having been compensated by the fall in the death rate. During the last few years this has ceased to be true; even before the war the effect of the declining birth rate had outstripped that of the lessening death rate.

Conclusion.

This summary will be enough to indicate to the student of vital statistics the nature of the information provided by Dr. Stevenson and his staff in their new report; the report is in every respect worthy of its predecessors and a credit to English statistical science.

EPSOM COLLEGE.

THE sixty-sixth annual general meeting of the Governors of Epsom College was held on June 27th, at 37, Soho Square, W., with Sir HENRY MORRIS, the treasurer, in the chair. The result of the last elections to ordinary pensionerships, Morgan annuities, and foundation scholarships was announced.

The annual report of the council, which was presented to the meeting, stated that in spite of the difficulties which have had to be contended with, including the greatly increased costs in many departments of the College, the results are fairly satisfactory. The council again expressed their appreciation of the efforts of the honorary secretaries, the British Medical Association, and other friends of the College to procure donations and subscriptions on behalf of the Royal Medical Foundation during the past year; they also wished to thank the editors of the *Lancet* and BRITISH MEDICAL JOURNAL for numerous kindnesses shown. Although many subscriptions had been lost as a result of the war, the sum of £4,500 required to maintain the work of the Foundation has been secured. The late Mr. Henry Duncalfe, J.P., of Sutton Coldfield, has left to the College the net sum of £4,500 in trust, the income of which is to be paid in annuities to the daughters of medical practitioners "who shall be, and so long as they remain, unmarried, and who shall have attained the age of 50 years." Dr. Ralph Gooding, a vice-president, has given the sum of £100 to establish an annual prize for botany at the College. The War Memorial Fund, instituted by the Old Epsomian Club, now amounts to nearly £2,000. Subscribers to this fund will have the same voting privileges as contributors to the Royal Medical Foundation.

In proposing the adoption of the report the Chairman drew attention to the fact that the bequest from the late Dr. Strong, which had been reported in the press recently, was left for the specific purpose of increasing pensions and for providing new pensions. He also mentioned the need of special gifts for other purposes, such as building, repairs, reducing the mortgage, making good the depreciation of stocks, and providing for increases in masters' salaries. The expenditure in future on the last-named item would be greatly increased owing to the necessity for meeting the urgent demands for higher salaries for masters.

At the conclusion of the proceedings a cordial vote of thanks to Sir Henry Morris for his indefatigable services as treasurer was moved by Sir WILLIAM CHURCH, chairman of the council, and seconded by Mr. ERNEST PAGE, K.C., vice-chairman, and was carried by acclamation.

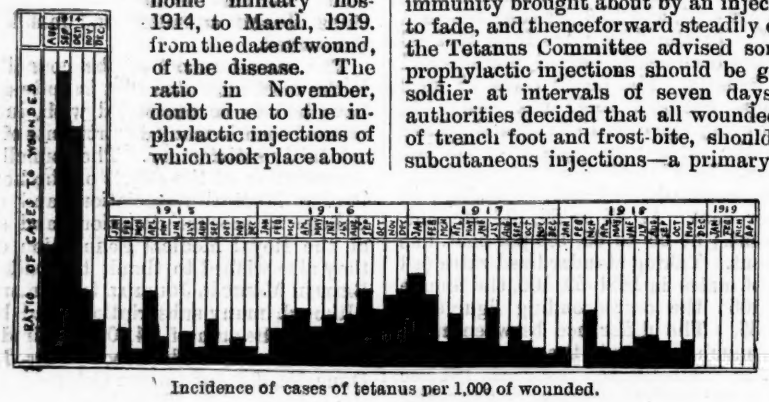
A MEDICAL officer of the United States Public Health Service, instructed to visit influenza patients for fifty miles up and down the coast of North Carolina, accomplished his duties by means of a naval hydroplane, which, with a pilot and a machinist, was placed at his disposal.

TETANUS IN HOME MILITARY HOSPITALS.

SUMMARIES of the first nine analyses of cases of tetanus treated in home military hospitals have appeared from time to time in the BRITISH MEDICAL JOURNAL.[1] We have now received from Major-General Sir David Bruce, K.C.B., F.R.S., the tenth and eleventh analyses, which complete the series. The number of cases of tetanus dealt with in the eleven analyses and the rates of mortality are shown in the following table:

Analyses.	No. of Cases.	Recovered.	Died.	Mortality per Cent.
1. 1914–15	231	98	133	57.7
2. 1915–16	195	99	96	49.2
3. Aug.–Oct., 1916 ...	200	127	73	36.5
4. Oct.–Dec., 1916 ...	100	69	31	31.0
5. Dec., 1916–Mar., 1917 .	100	81	19	19.0
6. Mar.–June, 1917 ...	100	71	29	29.0
7. June–Sept., 1917 ...	100	85	15	15.0
8. Sept.–Dec., 1917 ...	100	84	16	16.0
9. Dec., 1917–April, 1918	100	76	24	24.0
10. April–Sept., 1918 ...	100	74	26	26.0
11. Sept., 1918–Mar., 1919	100	74	26	26.0

The diagram which we reproduce below represents the ratio of the cases of tetanus to the number of wounded soldiers treated in home military hospitals from August, 1914, to March, 1919. They are reckoned not from the onset of the disease, but from the date of wound, abrupt fall in the ratio in November, 1914, was without doubt due to the introduction of prophylactic injections of antitetanic serum, which took place about the middle of the previous month. The diagram shows that the incidence of the disease tended to become lower as the war went on. It is probable that this was due to earlier and more thorough surgical treatment.



Incidence of cases of tetanus per 1,000 of wounded.

Surgical Prophylaxis.

In the second analysis of cases of tetanus in 1915 the opinion was expressed that "if thorough surgical treatment is carried out on wounds from the beginning so as not to allow the presence of necrotic tissues or foreign bodies, the number of cases of tetanus should sensibly diminish, if not altogether disappear"; and later, in the fifth analysis, that "if surgical treatment could be made more successful, and if wounds could be cleaned up and rendered sterile at the beginning, then there would be no more cases of tetanus." The surgeons took a long time to learn how to do this, remarks Sir David Bruce, but on the introduction of primary excision and primary or delayed primary suture the most remarkable results were obtained, and if it had not been for the sudden cessation of the war, it is probable that tetanus would have become extinct in the British army as a war disease. The fourth edition of the Memorandum on Tetanus, issued by the War Office Committee for the Study of Tetanus, states, in the section on general surgical prophylaxis, that "complete and early excision of gunshot wounds is a most potent factor in the prevention of tetanus. . . . The surgical prevention of tetanus, therefore, consists of the free removal of all damaged tissues before the organisms carried into the wound have developed to a dangerous degree. This will probably be within the first twelve hours of wounding."

[1] BRITISH MEDICAL JOURNAL, October 23rd, 1915; June 30th, 1917; September 15th, 1917; December 1st, 1917; February 23rd, 1918; March 16th, 1918; October 12th, 1918.

Incubation Period.

The average length of incubation of cases of tetanus treated in home military hospitals since August, 1914, is shown in tabular form. In the first analysis the number of cases dealt with was 231, in the second 195, and in the third 200. The last eight analyses dealt each with 100 cases. The total number of cases was 1,426. The average incubation period in days for each of the eleven analyses in chronological order was 13.4, 31.2, 30.6, 45.0, 67.0, 44.1, 55.5, 46.9, 46.19, 68.5, and 54.8. The average incubation period for the whole series was 39.5 days. Generally speaking, the mortality rate and the incubation period varied inversely in any group of cases.

In the tenth analysis there were 87 cases of general tetanus and 13 cases of local tetanus; the rate of mortality in the former was 29.9; among the latter there were no deaths. In the eleventh analysis there were 86 cases of general, and 14 of local tetanus; the rate of mortality in the former was 30.2, and among the latter there were again no deaths.

Serum Prophylaxis.

On the recommendation of the Adviser in Pathology to the B.E.F., France (Sir William Leishman), the primary prophylactic dose of antitetanic serum was changed from 500 to 1,500 units. This increase, which was instituted in November, 1918, should show its good effect, if any, on the incidence of the disease among all wounded rather than in the rate of mortality among cases of declared tetanus.

The prophylactic value of antitetanic serum is now established beyond doubt, but clinical and experimental evidence goes to show that within about ten days the immunity brought about by an injection has already begun to fade, and thenceforward steadily declines. Accordingly, the Tetanus Committee advised some time ago that four prophylactic injections should be given to every wounded soldier at intervals of seven days. The army medical authorities decided that all wounded men, including cases of trench foot and frost-bite, should receive at least four subcutaneous injections—a primary injection given at the time of wound and three others. Instructions were also issued that accidental wounds received at home—especially those contaminated with dirt—should be treated in the same way, as regards prophylactic injections, as gunshot wounds received overseas. These multiple prophylactic inoculations have been in vogue more or less since the beginning of 1917, but the number of wounded men receiving four inoculations has varied much according to the energy of the local authority. The main result of multiple inoculations should be the lowering of the incidence of tetanus among the wounded, but figures are not yet available to show whether this is so or not. The known figures suggest strongly that the death-rate among those who contract tetanus tends to fall as the number of injections increases from one to five. Hence the Tetanus Committee records its opinion that until our knowledge of the immunizing process in tetanus is more advanced these multiple injections should be continued.

Double and Quadruple Serums.

Early in 1918 Major Carroll Bull, U.S.M.C., demonstrated at the R.A.M. College his method for the production of the toxin of gas gangrene (*B. welchii*). Dr. R. A. O'Brien, of the Tetanus Committee, at once began to prepare a double serum containing the antibodies of tetanus and gas gangrene, and the committee recommended the D.G., A.M.S. to put this double serum into use as soon as possible so that its value might be submitted to a practical test. By the end of March 10,000 phials were sent to France, and by the middle of July 60,000 doses had gone over. At a War Office conference held in London at the beginning of November, 1918, it was decided to add the antitoxins of *Vibrion septique* and *B. oedematiens* to the double serum. In the last two analyses of cases treated in home hospitals

only two cases are noted in which the injection of double serum was given, and both recovered. It appears that this "tetanus *plus* gas gangrene serum" in the strength used was not a marked success in the prevention of gas gangrene, though there is no evidence that the addition of antitoxins of other anaërobes had any effect, good or bad, on the tetanus antitoxin.

Therapeutic Injections.

Specific treatment consists in the giving of tetanus antitoxin, which has the power of neutralizing the tetanus toxin with which it comes in contact. The problem in treatment is to bring about this contact in the fullest and speediest manner. Time is the all-important element in the treatment of tetanus.

The Tetanus Committee in their memorandum (from which we have just quoted) express the opinion that "in acute general tetanus the best method of treatment lies in the earliest possible administration of a large dose of antitoxin by the intrathecal route, repeated on the following day, combined with and followed on succeeding days by subcutaneous and intramuscular injections." In acute general tetanus the best results are obtained from very large doses of serum. From analyses of the figures in the last two series of 100 cases treated in home military hospitals no case can apparently be made out either for or against the intrathecal route. In each of these two series one patient did not receive therapeutic treatment with antitetanic serum, and died. Of the 99 patients in each series who received this treatment 74 recovered, and 25 died.

RESEARCH DEFENCE SOCIETY.

THE annual general meeting of the Research Defence Society was held on the afternoon of June 26th at the house of the Medical Society of London, when Viscount KNUTSFORD, chairman of the committee, presided. A report dealing with the work of the society during 1917 and 1918 was presented. It stated that many lectures and addresses were given, especially to soldiers, and a large quantity of literature was distributed. "But," the report continues, "the old sort of controversy has ceased, for the present at any rate, to be needed. There has been no urgent demand for our propaganda. The public has learned the value and the necessity of experiments on animals, and we cannot actively defend research unless it is actively attacked." It is recognized, however, that the society must be ready for any emergency such as that created by the second reading of the Dogs' Protection Bill last April. In connexion with this matter branches of the society held meetings in Dublin, Birmingham, and Portsmouth, a deputation was received at the Home Office, and literature stating the case against the bill was sent to M.P.'s and the newspapers. The offices of the society have been removed to the Medical Society of London, 11, Chandos Street, Cavendish Square, and the honorary secretary, Mr. Stephen Paget, has now for his colleague as assistant honorary secretary Major W. E. Elliot, R.A.M.C., M.C., M.P. for Lanark.

Lord KNUTSFORD said that the whole medical and surgical history of the war was a most complete and final answer to the antivivisection agitation. Few people now doubted the necessity for experiments on animals, and very few indeed were the experiments not performed mercifully and without pain. The society had done useful work, and though it could not declare dividends could show large profits. Early in the war it had helped to teach soldiers the great use of preventive measures, and its opponents had utterly failed to convince the soldier even with the bribery of a pound of chocolates.

Sir ANTHONY BOWLBY, K.C.B., K.C.M.G., K.C.V.O., spoke on experimental medicine and the sick and wounded in war. The British army, he said, had been the healthiest of all the armies engaged; its sick wastage was less than any other. The reasons for this were, in the first place, that the average man in this country was a cleanly animal, and understood and followed advice which was evidently reasonable; and, in the second place, that the Army Medical Service as a body of experts trained in hygiene and preventive medicine was unequalled in any country in the world. Every one was aware of the small incidence of enteric fever in the war, but there were people who were trying to explain away the value of the prophylactic inoculation by saying that the comparative freedom from enteric was due not to inoculation but to improved hygiene. Even were this true the fact would remain that the hygiene of to-day was based upon the experimental medicine of yesterday; but he was not content to leave it at that, and he affirmed with positiveness that preventive inoculation was to a very large extent the real cause of the immunity. While it was impossible, because unjustifiable, to carry out experiments on bodies of men by inoculating some and not others, the case was proved to demonstration by the unfortunate instance of the French troops who, in the early days of the war, hurrying to save their frontier, went out uninoculated. The result was that between August, 1914, and the following April there were as many cases of enteric fever in the French army as were recorded in the South African war. The strength of the army was wasted to the extent of 60,000 men. The great prevalence of tetanus was not anticipated at the beginning of the war, so that at first the supply of prophylactic serum was not proportionate to the number of troops. Supplies of antitetanic serum were obtained as quickly as possible, and by the end of October, 1914, large quantities became available. Its value was shown by the fall in the ratio of tetanus cases to the number of wounded. The ratio in September, 1914, was six times as high as it became in November, and nine times as high as it became in December. On experimental medicine which had been actually developed during the war a book might be written, and doubtless would be. A great deal had been learned with regard to gas gangrene, in particular that three organisms were concerned, which accounted for the comparative failure of serum treatment. Towards the end of the war a trivalent serum was produced which, in the opinion particularly of the French authorities, was of very great value, although it did not do enough. Valuable work on the mode of dissemination of trench fever was done as a result of the action of British and American volunteers, who subjected themselves to the attack of infected lice, whereby it was established that it was through lice that trench fever infection was conveyed. Energies were thereupon directed to a simple means of getting rid of the lice by treating the clothing by heat, and the incidence of trench fever rapidly came down, thanks to a very painful vivisection upon the willing human subject. Much had been learned also with regard to dysentery, both the amoebic and the bacillary form; it was found possible to prevent spread and to expedite cure. Dysentery first developed in the British army as a result of the success of the battle of the Somme in 1916, when the men entered into territory which had been occupied by Germans suffering from the disease. In conclusion, Sir Anthony mentioned the discovery of filter-passing organisms by Sir John Rose Bradford and Captains Wilson and Bashford. He had no doubt whatever that this discovery would throw a flood of light upon the whole of the zymotic diseases met with in civil life.

Major W. E. ELLIOT, M.P., in seconding a vote of thanks to Sir Anthony Bowlby (which had been moved in a few words by Sir FREDERICK MACMILLAN), said that the regimental medical officers were most grateful for the work done in the laboratories at the base. He was an eye witness of the value of inoculation against typhoid. His own regiment was sent up the trenches in the Ypres salient in February, 1915, and, warned by the medical authorities, the step was taken of inoculating practically all the men against typhoid; in his own regiment there was not a single case, and in the division not more than half a dozen, and that in a region where typhoid had been prevalent. He also paid a tribute to the volunteers in the trench fever experiment who had subjected themselves to the great discomfort and risk of an attack by lice. It was intolerable that men who had manifested so great a desire to be of service to their fellow creatures should have mud thrown at them by the unthinking and the prejudiced.

THE first Scandinavian Congress on Pediatrics is to be held at Copenhagen on August 15th and 16th. The chief subject proposed for discussion is the classification and treatment of acute digestive disturbance in artificial feeding. The general secretary is Dr. A. H. Meyer, V. Boulevard 51, Copenhagen B.

British Medical Journal.

SATURDAY, JULY 5TH, 1919.

PEACE AND SOCIAL JUSTICE.

THE signature at Versailles on June 28th of the conditions of peace by the German delegates "without," as they aver, "mental reservation," may be reckoned to have brought the European war to an end, for when the instigator and chief supporter of the aggression admits defeat his abettors, it may be assumed, will quickly follow his example. The date of ratification remains uncertain, but it is probable that the war will be legally and technically over on August 4th, the fifth anniversary of its commencement.

M. Clemenceau, one of the chief makers of the peace, in his speech when presenting the text of the Treaty to the French Assembly, characteristically treated it as an instrument for removing obstacles and clearing the ground for the real tasks of reconstruction. We find General Smuts, too, describing the document as simply the liquidation of the war situation in the world, and asserting that a new spirit of generosity and humanity born in the hearts of the people in this great hour of common suffering and sorrow can alone heal the wounds which have been inflicted on the body of Christendom. While we may agree, we may yet claim that this treaty contains two parts which do foreshadow the new spirit among the people which General Smuts desires. The one is the disappearance of the theory of the balance of power and its replacement by the Covenant; the other is the establishment of an international conference, with a permanent executive, for the amelioration of the conditions of work-people and the adjustment of their relations with employers in all countries. The Covenant of the League of Nations is an attempt to promote international co-operation and achieve international peace and security by, to put it shortly, the establishment of international law as the actual rule of conduct among governments; with a tribunal for promoting this much-to-be-desired consummation. The original members of the League of Nations signatory of the treaty number thirty-two, and thirteen other States are invited to accede to the Covenant. The League will act through an assembly and a council, with a permanent secretariat. The assembly will consist of representatives of the members of the League; its work will be, in the main, done by a smaller body, the Council, consisting of representatives of the principal allied and associated powers, together with representatives, selected by the assembly from time to time, of four other members of the League.

So much must be said to make clear the paragraphs of the treaty which affect medicine and hygiene. They are to be found in the thirteenth part, which declares that universal peace can be established only if based upon social justice. It sets out the several respects in which conditions of labour involve injustice, hardship, and privation, producing unrest so great that the peace and harmony of the world are imperilled. The reforms needed are said to be the regulation of the hours of work, including the establishment of a maximum working day and week, the regulation of the labour supply, the prevention of unemployment, the provision of an adequate living wage, the protection of the worker against sickness, disease and injury arising out of his employment, the protection of children, young persons and women, and provision for old age and injury. Failure of any nation to adopt humane conditions of labour is, the treaty declares, the obstacle in the way of other nations which desire to improve the conditions in their own countries. The treaty therefore sets up a permanent organization consisting of original members of the League of Nations and such other nations as may eventually be admitted to the League. It provides for the meeting of a General Conference of representatives of the members at least once a year; it will be composed of four representatives of each of the members, of whom two will be Government delegates and two persons representing respectively employers and the work-people of each of the members. There is to be established also an International Labour Office controlled by a governing body of twenty-four persons, consisting of twelve persons representing the Governments, six persons elected to represent the employers, and six to represent the workers. The delegates at the Conference may be accompanied by expert advisers, and technical assessors may be added to any committee appointed. Any of the members—that is to say, any of the States—will have the right to make complaint to the International Labour Office to the effect that another member is not carrying out a convention into which it has entered, and any industrial association of employers or of workers may make similar representations. If the governing body of the Labour Office thinks there is ground for investigation it will take steps to obtain the appointment by the Secretary-General of the League of Nations of a commission of inquiry, which will present a report on the validity of the complaint and indicate measures of an economic character against the defaulting government. The report will be communicated to each of the governments concerned by the Secretary-General. Any government which refuses to accept the recommendations may appeal to the permanent court of international justice.

The first annual meeting of the general labour conference will take place in Washington this year; it will be organized by an International Organizing Committee of seven members appointed by the United States of America, Great Britain, France, Italy, Japan, Belgium and Switzerland. The subjects for consideration will be the application of the principle of the eight-hours day or the forty-eight hours week; the question of preventing or providing against unemployment; matters concerning women's employment before and after childbirth, including the question of maternity benefit, the employment of women during the night and in unhealthy processes, and the conditions which should regulate the employment of children, including the minimum age of employment, and their employment during the night and in unhealthy processes. In particular, proposals will be made for the extension and application of the international conventions adopted at Berne in 1906 with regard to the prohibition of night work for women employed in industry and the discontinuance of the use of white phosphorus in the manufacture of matches.

Among the general principles enunciated are, in addition to those already mentioned, the abolition of child labour, and the imposition of such limitations on the labour of young persons as shall permit the continuation of their education and their proper physical development. Further, it is laid down that men and women should receive equal remuneration for work of equal value, and that each state should make

provision for a system of inspection in which women should take part in order to ensure the enforcement of the laws and regulations for the protection of the employed. These methods and principles, it is admitted, are neither complete nor final, but the high contracting parties believe them well fitted to guide the policy of the League of Nations.

If the machinery of the Covenant proves strong enough—and, so far as written engagements can go, it could hardly be made stronger—this part of the treaty may achieve great results, for, as we pointed out soon after the armistice, wages and the hours of work are the two great causes of the conflict between labour and capital. Could these disputes be settled by methods accepted by both parties as reasonable, a vast benefit would be conferred on humanity. We believe it possible that medicine may play a beneficent part in achieving this end, but for that a wide conception of the relations of medicine to industry is necessary.

THE SIGNIFICANCE OF THE CEREBRAL CORTEX.

PROFESSOR ELLIOT SMITH'S Croonian Lectures on the significance of the cerebral cortex, the publication of abstracts of which is concluded in this issue of the JOURNAL, comprise one of the most valuable contributions that British medicine has recently made to the study of the complex problem of the functions of the brain. For although Professor Elliot Smith is essentially an anatomist, and has gained his high reputation by anatomical investigations, these lectures are concerned largely with the physiological significance of the different divisions of the nervous system, and especially with the question of function as far as it can be deduced from the comparative anatomy and the evolution of the brain.

Inference of function from structure alone is not always reliable, and, as many of the views expressed in the lectures are influenced by other hypotheses that have not yet received sufficient independent confirmation, the distinguished author will not expect unreserved acceptance. He has, however, taken the opportunity of collating in an easily accessible form some results of the extensive researches made within recent years into the comparative anatomy of the brain, and he has also given us a working plan of the nervous machine as a whole. This plan is very welcome, and cannot fail to influence thought and research into the complex problem of cerebral function.

The lectures were inspired throughout by a vivid realization of the theory of evolution. Professor Elliot Smith pointed out that in the primitive vertebrate smell was the dominant sense; the only representative of the cerebral cortex was simply a receptive centre for smell impressions and a mechanism through which the animal's behaviour could be influenced by such stimuli. This primitive olfactory area was connected with the hypothalamus, which attained a relatively enormous development in the lower vertebrates. As this structure sent numerous descending tracts to the more caudal segments of the nervous system, smell impressions not only excited pursuit of food, but, by stimulating visceral and vasomotor centres, influenced the structures concerned in swallowing and digestion; this ensured an anticipatory preparation for the food that was sought. The hypothalamus was consequently an important centre for the correlation of olfactory impulses with visceral functions; and indirectly also, since the hypophysis, or pituitary body, which is developed from it has an important part in controlling the metabolic activities of the body. This rudimentary cortex which received olfactory impressions was also the centre whereby the affective aspect of smell impressions was appreciated, since the olfactory tracts, unlike other sensory paths, enter the cortex directly, and not as these other sensory paths do, through the optic thalamus, which Dr. Head regards as the great affective sensory organ.

The original cortex was therefore mainly an organ for appreciating the presence, and the attractiveness or unattractiveness, of objects that affected the sense of smell, and it was consequently the chief arbiter in the primitive animal's behaviour; but it was also the organ by which the affective tone of olfactory impressions connected together a sequence of events, so that the various incidents of a long series of experiences became united to form part of a consecutive consciousness. In this way it made possible the first rudiment of consciousness, and the reference of sensations to happenings in the external world. The sense of smell consequently represents the germ of all the higher psychical powers.

But other senses endowed with spatial qualities which permit more accurate reaction to the environment, as deep sensibility, cutaneous sensibility, and vision, soon came into play and provided a powerful stimulus to the development and growth of the brain. The thalamic nuclei, which first receive these impressions, increased enormously in size, and from them tracts of fibres ascended to the lateral edge of the primitive cortex, which then underwent a corresponding development and bulged into the lateral ventricle. This new structure, which Professor Elliot Smith terms the hypopallium, is the first representative of the complete cortex, as in it visual, auditory, and cutaneous impressions could be correlated and so play a combined part in controlling the behaviour of the animal. Through it the reptile, for instance, acquired the power of associating the informations obtained by touch, hearing and vision, and of performing acts of discrimination in which these senses take a definite part.

The hypopallium was, however, but an imperfect instrument, and was converted into part of the corpus striatum as it was gradually superseded by the development of the more highly organized neopallium from the adjoining part of the external surface of the brain. It is the neopallium which constitutes the greater part of the cerebral hemispheres of the higher mammals. The appreciation of spatial relations and the power of discrimination became possible only as it developed in response to the corticalward flow of other and more varied sense impressions, endowed with spatial qualities which could be there psychically integrated. When as a result of this the higher mammal acquires a conception of space, the conscious recognition of posture and of movement, and the power of appreciating spatial relations, it began to assume control over its movements. Then, too, the animal was able to learn to perform complex and skilled acts, but only because the sensory and visual centres of the neopallium provided it with the knowledge of posture and the physiological dispositions without which these functions would be impossible.

By a further development along these lines, and especially by the correlation and integration of sense impressions of various origins, the animal with a neopallium acquired ideas of the size, of the shape, and of the weight of objects, and of their position in space in relation to each other and to itself. It is in this way that discriminative sensibility, which is one of the essenial functions of the human cortex, was

acquired, and that the intellectual functions of the cortex developed. As the lecturer insisted, the real functions of the cortex are of a psychical nature.

TEMPORARY COMMISSIONS IN THE R.A.M.C.

IN our last issue we announced the terms offered by the War Office to candidates for temporary commissions in the R.A.M.C. Medical officers are needed to replace others who have urgent claims for demobilization, and also to serve in India. The invitation was addressed both to newly qualified men and to medical officers who have served before. The former will be commissioned as lieutenants and the latter in their previous rank; the period of engagement is for one year or until no longer required, whichever shall first happen. Consolidated pay will be given at the rate of £550 a year, with rations or allowance in lieu thereof, and an outfit allowance to officers commissioned for the first time. No additional emoluments of any kind will be given, and no gratuity will be issuable on termination of service, but there will be the usual travelling allowance and expenses when travelling on duty. Candidates must be fit for general service at home or abroad. The junior ranks of the Territorial Force and Special Reserve will receive the same rates of pay as temporary officers. The announcement, which appeared also in the lay press last week, made no allusion to the position of medical officers now holding temporary commissions in the R.A.M.C. At the present time temporary medical officers in the R.A.M.C. are serving under a contract with the War Office, the period of such service being "until the termination of the present emergency, or until [their] services are no longer required, whichever shall first happen." We understand that the Army Medical Department is advised that in all probability "the present emergency" will be officially declared to terminate on August 4th, 1919. In addition to their consolidated pay of 24s. a day and a gratuity of £60 for each year or part thereof it is to be noted that temporary medical officers in common with other officers have been receiving since February last the Army of Occupation bonus of £72 16s. a year; thus their receipts at the present time are: Pay, £438; gratuity, £60; occupation bonus, £72 16s.; total, £570 16s. The Army of Occupation bonus is paid at the prescribed rates to every officer retained in the army anywhere, or for purposes of demobilization. On the day the present emergency ceases (probably August 4th, 1919) the temporary R.A.M.C. officer's contract automatically comes to an end in accordance with its terms. We are informed that that contract will not be renewed—it will, in fact, be no longer applicable when the emergency has been declared ended. Thus the War Office has no power to retain any man on the old contract after August 4th next. To those medical officers who wish to remain with the army the new contract is offered. The terms and conditions of the new contract are those outlined above and stated more fully in the JOURNAL of June 28th (p. 803). In the case of newly qualified practitioners joining for the first time, and of those who have served before, the period of service will commence on the day of joining for duty. In the case of medical officers now serving who desire to continue, the period of service will begin "as from August 4th, 1919, or the date of official termination of the war, whichever happens first." For all alike the period of service will continue until the expiration of twelve calendar months from its commencement, or until the officer's services are no longer required, whichever shall first happen. The new contract is offered to temporary R.A.M.C. officers now serving at contract rates of pay, and also to Captains and Lieutenants R.A.M.C., Special Reserve, and Territorial Force now serving. Beyond the £550 consolidated pay there will be no gratuity and no Army of Occupation bonus—that is to say, temporarily commissioned officers accepting the new contract will receive £20 16s. a year less than, owing to the occupation bonus, they receive at the present moment. No temporary medical officer will, however, be retained against his will after the present emergency has officially terminated. With regard to the number of medical officers already demobilized, we understand that the total up to June 24th was 8,260.

THE DIRECTORS OF HYGIENE AND PATHOLOGY, A.M.S.

IN the JOURNAL of May 3rd, 1919, we gave an account of the far-reaching scheme approved by the Army Council for the creation of directorates of hygiene and pathology, to form a part of the War Office organization of the Army Medical Department. The directorates will be directly responsible to the Director-General Army Medical Services for all matters relating to their respective spheres, and they will take over from the various branches of the Army Medical Department the sections of this work hitherto distributed between those branches. The scheme provides for the appointment of a director of hygiene and a director of pathology, these appointments carrying with them the rank of brigadier-general—a rank not, we believe, previously held by a medical officer. The post of director of hygiene or pathology may, however, be held by a major-general if selected for promotion to that rank in the ordinary course. It is now announced in the *London Gazette* of July 1st, that Colonel Sir William Horrocks, K.C.M.G., C.B., is appointed temporary director of hygiene at the War Office, and to be temporary brigadier-general whilst so employed; and that Major-General Sir William Leishman, K.C.M.G., C.B., F.R.S., is appointed director of pathology at the War Office. That these distinguished officers would be selected as the first holders of the new posts was, we may add, a foregone conclusion; in formulating the scheme for directorates of hygiene and pathology, Sir John Goodwin received from them expert assistance.

THE KINEMA IN MEDICAL EDUCATION.

THE demonstration by Major E. Distin Maddick at a recent meeting of the Anatomical Society in London has served to draw attention again to the possibilities of the moving film as a means of lightening the task of the modern medical student. Those who are familiar with the history of the Scala Theatre will know that Major Maddick is a medical man who has made kinematic photography his hobby, and was amongst the first to realize the educative as well as entertaining value of the moving film. It is therefore not surprising to find him applying the ample means at his command to the problems he had to face when a student at St. Thomas's Hospital, some thirty years ago. His first medical film, so far as we are aware, was one shown in the theatre of the Royal College of Surgeons of England during last winter to illustrate Professor David Ligat's lecture on abdominal reflexes. In that lecture the whole audience could clearly see the elicitations of various responses which, under ordinary circumstances, would be visible only to the spectators immediately surrounding the patient. The films which Major Maddick exhibited at the Anatomical Society, and which were prepared from specimens in the museum of the Royal College of Surgeons, were intended to show that the film method has a place in the routine work of a medical school as well as in the exemplification and study of clinical conditions and surgical operations. By a species of "trick" photography a skeleton appears on the screen, kindly presents its various features to the audience, and then begins to undress, as it were, until only the spinal column is left. Then follows the reconstruction, where bone after bone appears, turns its various facets and markings in magnified details to the audience and then flits into its proper place in the skeleton. The student has an opportunity of seeing the bones of the skull assemble and enter into their respective positions in the

architecture of the cranium. The films are designed as an introduction to the study of the human skeleton and will prove of most value in imparting an elementary knowledge to lay audiences and will no doubt prove popular with the armies on the Rhine and in France. No one knows better than Major Maddick that such films cannot replace the study of actual bones, but they will serve to lighten the tedium of lectures on osteology. On the other hand, suitably prepared films will make it possible to bring before medical students certain subjects which are scamped at present because teachers have not the means of demonstrating them to lecture audiences—namely, the action of living muscles in standing, walking, breathing, etc. There can be no doubt that films will find a permanent place in the armamentarium of teachers in every department of medical education, because in no other way can an essential property of living matter be represented—namely, *movement*.

LIQUOR CONTROL OR PROHIBITION.

THE Council of the British Medical Association, at its meeting on June 25th, resolved to support a memorial, signed by a number of eminent members of the profession in England, with a slight modification, in the following terms: "In view of the great advantages to the efficiency and well-being of the nation, and to public health and order, which have followed the restrictions placed on the sale of intoxicating liquor during the war, the undersigned earnestly request His Majesty's Government to maintain reasonable restrictions until a permanent measure of reform has been enacted by Parliament." The position of the Government in the matter was clearly stated by the chairman of the Central Control Board when he met the deputation from the Temperance Council of Christian Churches on June 14th. He said that there could be no question of continuing the war powers, and that a new system, with parliamentary and ministerial control, would have to be set up. He went on to say that he believed that a large majority of the people would be in favour of setting up a form of Government control based upon recent experience, which, while ensuring improvement compared with the pre-war period, would not interfere with the habits, customs, and pleasures of the people to an undue extent. That is to say, he was in favour of the imposition of the minimum restrictions necessary to obtain the desired result. Most people will agree with him that the conditions of the present time offer a unique opportunity for achieving a permanent advance. There is at present no machinery for the maintenance in future of restrictions other than those in force before the war; but Mr. Bonar Law, in announcing on July 2nd that the existence of the Central Control Board was to be terminated, said that a bill was shortly to be introduced to set up a Commission under a Minister responsible to Parliament. The British workman seems very indisposed to accept restrictions on the quality of beer, and the gravity of beer is, in fact, to be increased. The same motive appears to underlie the action of the South Wales Branch of the Working Men's Club and Institute Union in purchasing a brewery, which they intend to conduct themselves. They paid £20,000, raised in £1 shares among the 20,000 members in the seventy clubs constituting the branch. In the United States a remarkable situation has been brought about. Under the war-time prohibition act the whole country was to become "dry" on Tuesday last, July 1st; that is to say, the manufacture, sale, or transport of intoxicating liquor within the United States, and importation or exportation, was prohibited as from that day; but Congress failed to provide machinery for enforcing the law in time, and the delay may last a week or more. Further, the law will cease to be operative when demobilization is complete, and this, it is said, may occur within seven or eight weeks. But even should this happen, the prohibition regulations will become permanent six months hence, for an amendment of the Federal Constitution enforcing the same prohibition as from January, 1920, has been sanctioned by the requisite majority of State Legislatures. Before recent events prohibition in one form or another had been in force in thirty-four states out of the forty-eight. Sixteen were "bone dry"—that is, intoxicating liquor could neither be sold in them nor imported; eighteen were "dry," and in them liquor might not be sold but could be imported. In the other fourteen states there was no State legislation, but by the operation of local option many areas in most of them were "dry" or "bone dry"—in Idaho a citizen may be sent to prison for having intoxicating liquor in his cellar. In Canada the War Measures Act of the Federal Government prohibits transport and import. Moreover, eight out of the nine provinces have been voted "dry" by local legislation; in the ninth (Ontario) a referendum is being taken. In the province of Quebec a referendum is to be taken on the question whether beer and wine of very low alcoholic strength should be allowed, and in the United States brewers are fighting on this programme. They maintain that alcoholic beverages no stronger than 2.75 should not be classed as intoxicating liquors, and this point is to be decided by the courts. This is apparently about 1 per cent. lower than the average of German beers, about 2 per cent. lower than English mild beer, and about 1 per cent. more than ordinary stone ginger beer. Professor Stephen Leacock has an article in the *National Review* for this month—amusing in form, but serious in purpose as becomes the head of the department of political economy at McGill—in which he expresses the opinion that the federal prohibition law will, without doubt, come into force next January; but he foretells a revolt some day, with another campaign ending in repeal. In this country, although the American prohibitionists believe that they will get Great Britain "dry" within two years, we shall probably avoid extreme action. The medical memorial, which now has the support of the Council of the British Medical Association, may be interpreted as a request to the Government to introduce legislation at an early date, and it will perhaps be not unsafe to assume that the restriction mainly had in view is the limitation of the hours of sale. It may possibly be assumed also that the memorialists desire to discourage public-houses with standing bars and to encourage taverns where people may get a meal and wash it down with water, still or aërated, or infusions of tea or coffee, or alcoholic beverages, as they may prefer.

PROFESSIONAL CONFIDENCE.

EVERY now and again a judge at assizes takes the opportunity of pillorying a medical man for adhering to the principle of professional confidence. The principle rests upon the sure foundations of justice and humanity, and the nation is not likely to allow it to be overridden by *obiter dicta* from the bench. In December, 1914, Mr. Justice Avory made some observations at the Birmingham Assizes in relation to a case in which it was alleged that an illegal operation had been performed to procure abortion. He said that in such a case if the medical man attending considered that the woman was likely to die, so that her evidence would be lost, it was his duty to communicate with the authorities. He also said: "It may be the moral duty of the medical man, even in cases where the patient is not dying, or not likely to recover, to communicate with the authorities when he sees good reason to believe that a criminal offence has been committed." These observations led the British Medical Association to go into the matter once more, and on May 3rd, 1915, a deputation had an interview with the Lord Chief Justice; the discussion at the interview turned upon the duty of a medical man in a case of suspected criminal abortion. The Council at that time expressed the opinion that a medical practitioner should not under any circumstances disclose voluntarily without

the patient's consent information which he has obtained from that patient in the exercise of his profession, and stated that it had been legally advised that the State had no right to claim that such an obligation rests upon a medical practitioner. The Royal College of Physicians at about the same time arrived at a similar conclusion, stating that it had been advised that a medical practitioner is under no legal obligation either to urge the patient to make a statement, or if she refuses to do so, to take any further action. As will be seen from the letter from Sir John Tweedy published in another column, Mr. Justice Bray, at the Worcester Assizes, appears from the report in the *Worcester Journal* to have gone further than Mr. Justice Avory. In the case at Worcester the prosecution was for concealment of birth by an unmarried woman, and the doctor who was in attendance, after considering the matter, came to the conclusion that his duty to his patient precluded him from making any communication to the police. Mr. Justice Bray, somewhat imprudently as we think, committed himself, in a special address to the doctor, to the statement that professional confidence did not prevent the doctor in this case from giving information to the police, and that the view taken by the doctor was wrong. We believe that the doctor was right and that the judge was wrong, and this, we gather, is the view taken by the Medical Defence Union, which had been consulted by the doctor. This also was the view of Mr. Justice Hawkins, generally reckoned a strong judge; he said that for a doctor, called in to attend a woman and give her medical advice, to report the fact to the Public Prosecutor "would be a monstrous cruelty." This, again, was an *obiter dictum*, but it comes very much nearer the view of the medical profession in all ages and in all countries than the personal views expressed by Mr. Justice Avory and Mr. Justice Bray. There are cases in which a judge may be led away into believing that a doctor ought to violate the principle, but hard cases make bad law, and in the interests of society, justice, and humanity the principle of professional confidence must be upheld.

THE MINISTRY OF HEALTH.

THE Ministry of Health, with Dr. Addison as the first Minister, came into existence on July 1st; on that day all the powers and duties of the Local Government Board passed to the new Ministry. The question of the transfer to other Government departments of existing powers or duties not relating to the health of the people is reserved for consideration and decision at an early date. Communications should in future be addressed to the Secretary, Ministry of Health, Whitehall, S.W. All the powers and duties of the Insurance Commissioners passed to the Ministry of Health on the same day, and communications on insurance matters should in future be addressed to the Controller, Insurance Department, Ministry of Health, Wellington House, Buckingham Gate, S.W. The six commissionerships borne upon the estimates of the Commission are abolished, and the higher administrative staff, including the secretary and the six assistant secretaries to the Local Government Board and the secretary and the three assistant secretaries to the Insurance Commissioners, will be replaced. The Permanent Secretaries to the Ministry of Health are Sir R. L. Morant, First Secrerary; Sir John Anderson, Second Secretary; Sir W. S. Kinnear, Controller of the Health Insurance Department; Mr. E. Hackforth, Deputy Controller of the Health Insurance Department; Sir A. V. Symonds, Mr. L. G. Brock, Mr. E. R. Forber, Mr. I. G. Gibbon, Mr. R. W. Harris, Mr. C. Knight, Mr. A. B. Maclachlan, Mr. H. O. Stutchbury, Mr. F. L. Turner, Mr. F. J. Willis, Mr. A. Woodgate, will be Assistant Secretaries to the Ministry of Health. Mr. M. L. Gwyer has been appointed legal adviser and solicitor in place of Sir J. Lithiby, who is retiring. Mr. M. Heseltine has been appointed Secretary to the Consultative Councils to be set up. The medical staff of the Ministry of Health will be announced shortly. Sir Alfred Watson, hitherto Chief Actuary to the National Insurance Committee, has been appointed to a new post of Government Actuary. Steps have been taken to set up a Board of Health for Wales; the first members of the board, pending the settlement of the full scope of their duties, will exercise the functions hitherto performed by the Welsh Insurance Commissioners. Communications with reference to matters within the former province of the Welsh Insurance Commissioners should be addressed to the Secretary, Welsh Board of Health, Cardiff.

INCOME LIMIT FOR INSURED PERSONS.

A REPORT was printed in the JOURNAL of June 7th, p. 715, of a deputation from the Council of the British Medical Association to Major Astor, chairman of the Joint Committee for National Insurance, on the subject of the foreshadowed bill to change from £160 to £250 the limit of remuneration affecting the compulsory insurance of non-manual workers. The report was accompanied by an official statement by the Government. On June 26th a bill was introduced into the House of Commons by Major Astor giving effect to the Government proposals. It is entitled "A bill to alter the rate of remuneration for the purposes of exception from insurance under the National Insurance (Health) Acts, 1911 to 1918, and for purposes in connexion therewith." The bill consists of two clauses and is prefaced by the following memorandum: "Under the National Insurance Acts as they stand at present all manual workers are required to be insured without regard to their rate of remuneration, but persons employed otherwise than by way of manual labour are not insurable as employed contributors if their rate of remuneration exceeds £160 a year. The present limit of £160 a year was fixed in 1911, and, owing to the general increase in salaries and wages, it does not now represent the same dividing line between non-manual workers included in, and excluded from, insurance. The bill proposes the substitution of £250 for the previous limit as affording the closest possible approximation to the extent to which wages have risen in the case of the classes of non-manual workers affected." It is proposed that the measure shall come into operation as from June 30th, 1919. The second reading of the bill is fixed for Monday next. It is, of course, easy to understand why the Government is in haste to carry through this legislation; but the medical profession has a right to ask why it was not consulted long ago, for the position now brought about ought to have been foreseen.

CONFERENCE ON INFANT WELFARE.

A NATIONAL Conference on Infant Welfare was held at the Kingsway Hall, London, on July 1st, 2nd, and 3rd, under the auspices of the National Association for the Prevention of Infant Mortality. Dr. Addison presided at the opening session, when there was a large attendance of delegates from the various interested associations and local bodies all over the country. Dr. Addison said that it was recognized that one of the first duties of the new Ministry of Health must be to develop and extend the ante-natal and infant care services; of existing needs the chief was for a great many more maternity hospitals or homes of the right kind. By maternity homes he meant places small in size and simple in equipment for giving assistance in normal cases; these were required not only in large centres of population, but also in small towns and country districts. Linked up with these institutions there should be a more generous provision of maternity hospitals where skilled assistance for difficult cases would be available. In order to get the best results the co-operation of midwives throughout the country must be secured. Dr. Amand Routh followed with an address on the

causes of ante-natal, natal, and neo-natal mortality. In two British lying-in hospitals in a recent year, out of 119 cases of ante-partum haemorrhages sent in for treatment 8.4 per cent. of the mothers and 75 per cent. of the children died. What, then, must be the mortality where there was no expert medical advice during early labour, and no available lying-in institution where a sudden emergency could be dealt with? Nothing but adequate provision of ante-natal clinics and lying-in institutions would enable these and other complications of pregnancy to be discovered and treated. Mr. Eardley Holland, F.R.C.S., expressed the view that the time had come to make an estimate of the results to be expected from ante-natal care. He believed that the present rate of fetal mortality could be reduced by one-half; but this result could not be obtained by ante-natal methods alone, for not only were the majority of fetal deaths beyond the realm of ante-natal care, being the direct result of the accidents and complications of labour, but ante-natal care itself depended for its successful fulfilment on a high standard of midwifery. Out of the 50 per cent. of fetal deaths theoretically preventable he concluded that rather more than one-third (principally the syphilitic cases) could be prevented by ante-natal methods alone, rather more than another third (complications of labour) by intra-natal methods alone, and the remainder (cases of toxaemia, of pregnancy, and certain complications of labour) by combined ante-natal and intra-natal methods. Dr. J. J. Buchan, M.O.H. Bradford, urged that syphilis and gonorrhoea in pregnancy ought without delay to be made notifiable, and some power given to enforce adequate treatment.

ORTHOPAEDICS IN LONDON.

SIR ROBERT JONES has accepted the invitation of the Governors and Staff of St. Thomas's Hospital, London, to become Director of Orthopaedics to the hospital. He will co-ordinate and give general supervision to the various activities of the department, and will also give demonstrations and lectures. Sir Robert Jones has also accepted the invitation of the Royal National Orthopaedic Hospital to become a member of its surgical staff in order to assist in the extension of the facilities for orthopaedic surgery in London. We hope that this awakening of interest will lead to the establishment of adequate post-graduate instruction and a school of orthopaedics worthy of the metropolis. Sir Robert Jones will combine these new duties with those of the offices he holds in Liverpool, where he is lecturer on orthopaedic surgery in the University, and orthopaedic surgeon to the Royal Infirmary as well as to the Royal Southern Hospital.

LORD RAYLEIGH.

LORD RAYLEIGH, who died on June 30th in his 77th year, was one of the greatest men of science in the generation which is passing away. He was Senior Wrangler and Smith's Prizeman in 1865, thus at an early age proving that he possessed both application and mathematical insight. He became a Fellow of the Royal Society in 1873, and succeeded his father as third baron in the same year. He succeeded Clerk Maxwell as director of the Cavendish Laboratory, Cambridge, in 1879, and was himself succeeded in 1884 by Sir J. J. Thomson; in 1908 he was elected Chancellor of the University. Lord Rayleigh's early investigations were in connexion with the theory of sound, but there was no department of physics to which he did not contribute. In 1885, while engaged on experiments on the density of gases, he made observations which led up to the identification of argon by the late Sir William Ramsay, and so to the discovery of a new group of inert monatomic gases. In 1885 he became secretary of the Royal Society, and twenty years later its president. Many other honours came to him during his long career. When the Order of Merit was founded in 1902 he was among the first list of recipients, and in 1904 he received the Nobel prize for physics. He was one of the twelve foreign associates of the French Academy of Sciences, and held many other honours from foreign academies. Lord Rayleigh was an instance of the combination of the highest scientific attainments with practical administrative ability. He was one of the largest farmers in the country; he converted an estate of rough soil in Essex into good farming land, and was one of the first to show that the supply of milk to London might be conducted profitably with the observance of all scientific precautions to ensure purity. He is succeeded by his son, the Hon. R. J. Strutt, F.R.S., Professor of Physics in the Imperial College of Science, whose researches into the origin of radium and the measurement of geological time by radio-active data afford a striking instance of the inheritance of specialized ability.

THE HALF-YEARLY INDEXES.

THE usual half-yearly indexes to the JOURNAL and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or both of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Acting Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C.2. Such copies will be dispatched shortly after the middle of July.

Medical Notes in Parliament.

The "Dogs' Protection" Bill.

THE MEASURE REJECTED.

THE "Dogs' Protection" Bill, which was introduced by Sir Frederick Banbury and was greatly altered on report at the instance of the Government, came up for third reading in the House of Commons on June 27th. The third reading was formally proposed by Sir F. Banbury, who reserved his right of speech until later.

Sir Watson Cheyne asked the House to say that it declined to proceed further with the measure, which would impose an unnecessary and vexatious obstacle to medical research. While recognizing the value of the amendment carried by the Government as an alternative to the bill itself, he held that it introduced a very great obstacle to research. The task of getting the additional certificate which was required as the bill now stood ought not to be imposed. Another reason why he objected to the bill was that it involved a very grave censure upon a large body of honourable men and on a great profession; for this censure there was no justification. The bill in its present form implied that cruelty was being practised, and that the medical profession delighted in torture and could not be trusted to deal with animals. At one time he held certificates and licences, and later he became one of those responsible for signing certificates. At the time that he sought licences he found it difficult to get the second signature, and when the certificates were obtained they had to be taken to the Home Office, and used to lie there for some considerable time before they were gone through. Under the bill it was proposed to have further restrictions and another certificate, which was to be got in order to show that no other animal was possible for the experiment except a dog. It would be necessary not only to persuade the informed people but also the Home Secretary, who perhaps knew little about this particular department of science, that the experiment was necessary. Thus a very great difficulty would be added to many existing difficulties, and delay would be caused. In maintaining that the fresh restrictions were unnecessary, Sir Watson urged that those in responsible positions as to these matters lived up to their responsibility. He had known the danger of delay, and had tried to make the decision the same day; but he had more than once refused certificates, either that he thought the research was not a good one, or because he thought the man seeking to undertake it had not had sufficient preliminary education for such important work. The suggestion of the Anti-vivisection Society, that the duty of deciding as to the

grant of certificates was not satisfactorily discharged, was disgraceful. Sir Watson next referred to the principal arguments raised against experiments on dogs. It was said that if there was anything of value to be learned it could be obtained by observations on patients and by *post-mortem* examination. As an illustration how wrong that opinion was, Sir Watson spoke of the situation which occurred when the Germans first used gas. Personally, he was much alarmed, for if the enemy had gas enough, it seemed to him they could easily destroy whole armies. How was that risk to be dealt with? Were the authorities to sit down and wait while the doctors watched gassed men and waited for a *post-mortem* examination? Had experiments on dogs not been made much valuable time would have been wasted and many lives would have been lost. But certain experiments on animals—dogs and goats—were made and complete protection was quickly found against the gas. The history of medicine was full of instances of prolonged observations of patients and of *post-mortem* examination, without result. Yet results had been achieved almost at once by experiments on animals. In conclusion, he urged that at a time when health bills had just been placed on the Statute Book the sensible thing to do would be to sweep away restrictions instead of imposing fresh ones.

Sir Philip Magnus, in seconding the amendment, said that by the rejection of this bill Parliament would show its appreciation of the efforts that had been made by scientific men through researches to prevent and cure diseases. The bill was inconclusive and contradictory. For example, it appeared, as he read the first clause of the bill, that if some eminent surgeon desired to perform an experiment on a dog, which would relieve it of great pain and possibly save its life, he could not perform this experiment, however urgent, without a certificate from the Home Office.

Sir Frederick Banbury, replying to Sir Watson Cheyne, said that his speech would have been more relevant if the bill had come for third reading in the same state as when it passed its second reading. All that the bill now did was to say that a certificate must be given in the event of a dog being used for certain experiments. The Government, by submitting certain amendments on the last occasion and getting them carried, had really adopted the bill. He held that the course the Government was now proposing to take would be a breach of faith with the House of Commons.

Sir Henry Craik said that there was no use in splitting hairs on the third reading. The position of members was well known. Some thought that these experiments were justified, and others that they were not. Those in favour of them were prepared to oppose the bill in any form, even amended. Those who quite sincerely thought the experiments were not justified supported the bill on the ground that we had no right to use animals to the advantage of human beings. Sir Henry maintained that such a position as the latter could not be sustained.

Dr. Addison, Minister of Health, maintained that the action of the Government in opposing this bill was in accordance with ordinary parliamentary procedure. The Government, by having secured an amendment to the bill on the report stage, were not bound to say that it was one which as a whole the House should accept. The measure had been fully and carefully considered, and the Government recommended the House not to support the bill. At present, a licence must be held for any experiment, and it must be conducted in a licensed place. In the first place, therefore, everybody had to get a licence for himself, and for the premises; then the animal must be fully anaesthetized, and remain under the anaesthetic. That certificate (*a*) might be suspended. In the case of an operation, or if the animal was to be allowed to recover, certificate (*b*) must be obtained. In the case of a dog or a cat, the operator would have to get a further certificate in addition to (*a*) and (*b*) under the general licence; that was certificate (*c*). That was the existing position. Were they justified in imposing further restrictions on people who were already very much restricted, and especially as regards dogs, cats and horses? Had the restrictions been evaded, or improperly used? Had the existing scheme, which was very exacting, been found to be insufficient? No single case had been brought forward to show this. Had the scheme been insufficient to prevent cruelty? Sir Frederick Banbury had not brought forward a single case of the kind, and he could not do so. It was not a question of the opinion of the medical profession so much as whether a case should be made out for this change, or not. Sir Frederick Banbury had failed to show that existing arrangements were inadequate.

Sir John Butcher thought that the sole question was whether the demand for this additional certificate would hamper research unduly. It had already been demanded in the case of operations upon horses, asses, and mules, and he had never heard that there was any difficulty in obtaining it when it was required. He claimed that this bill was called for, to complete the recommendations of the majority of the Royal Commission, and that the Government should stand by the amendment made by the Under Secretary for the Home Office. He objected to the transfer of the matter to Dr. Addison.

Mr. Ronald McNeill saw nothing improper in the transfer of a bill from the consideration of one department to that of another. He favoured the rejection of this bill, because if operations in this country by British scientists were prevented, the only result would be that dogs now painlessly put an end to at Battersea would be sold for a few shillings or a few pence, and sent over to Boulogne or Ostend, where they would be operated upon by foreign scientists instead of our own, and, so far as he knew, there was no law in other countries providing so much protection as dogs got here.

Lieut.-Colonel W. Guinness traversed the statement by Sir John Butcher as to the Royal Commission and its recommendations, which had been carried out by administrative action. All that the Royal Commission said was: "If any alteration is made in the existing procedure the majority of us would agree that the special enactments now applicable to horses, asses, and mules might be extended to dogs and also to cats." That was a very different thing from saying that the Royal Commission recommended a change in the law in this respect. It was quite true that during the report stage the bill was practically transformed, that it was less disastrous to medical science now, it was more than ever libellous on the medical profession.

Colonel Burn supported the bill for reasons which he stated on report.

The House divided, and Sir Watson Cheyne's amendment was carried by 101 votes to 62.

The End of the Local Government Board.

On a vote for a sum not exceeding £1,380,377 for Local Government Board charges, of which £655,000 had already been voted on account, Dr. Addison made his last speech on June 30th as President of the Local Government Board before becoming Minister of Health on July 1st. He explained that the vote would hereafter be incorporated in the vote for the Ministry of Health.

In a general review Dr. Addison, touching first on war services, mentioned the assistance which had been given to the troops and invalided men by the Poor Law infirmaries throughout the country. They had provided 75,000 beds for the service of the army; of these 22,000 were in the metropolitan area. He next recalled that in February last an inter-Parliament organization was set up at the War Office, Admiralty, and Air Board to prevent the spread of infectious diseases arising out of or during demobilization. The methods adopted had proved to be successful. The number of discharged tuberculous men in institutions on June 1st was 2,000; the number awaiting treatment was 364.

Referring to the outbreak of rabies, Dr. Addison said that 54 cases of persons who had been bitten had been notified. Arrangements had been made in various centres throughout the country for the supply of antirabic vaccine, and the Board was being advised by Sir David Semple, who had been a Director of the Pasteur Institute in India. Vaccine for the first 19 persons bitten was obtained from Paris; subsequently 24 were treated in England, 11 with vaccine prepared at the laboratory in this country. No cases had developed hydrophobia. With regard to influenza, Dr. Addison recalled that in the six months ended March 31st there were in England and Wales alone 136,000 deaths from influenza. The Local Government Board, acting with the Medical Research Committee, had formed a Standing Committee to conduct research and endeavour to prevent the infection being brought into this country. He did not venture to hold out any sanguine hope as to the results of what could be done in the near future, as a great deal of research and organized inquiry was necessary. Speaking of venereal diseases, Dr. Addison said there were at present in England and Wales 146 centres. In London, Birmingham, Nottingham, Leeds, Newcastle, Manchester, Salford, and Liverpool there were excellent centres, each treating more than 13,000 persons, but in a large number of centres they were not doing as well as they would in time. At the very least 1,000 centres were needed. The difficulty was to obtain a staff of people with the modern training arising out of the experience of the war. It would be quite useless to require compulsory notification until the organization of efficient and up-to-date methods for treatment had been substantially completely organized. Otherwise people would be driven wholesale into very imperfect methods and into the arms of the quack. A most important matter yet to work out was to get the centres conducted on such lines that people needing assistance would readily come to them. With regard to tuberculosis, Dr. Addison said that during the

last year the number of beds available for tuberculous cases had been increased by 1,500, but it was useless to expect to cope with the disease until the state of national housing was improved. At present there were proposals for 3,300 additional beds. The grants made last year for assistance in dealing with tuberculosis amounted to £383,000. The maternity and child welfare work was at present in the experimental stage; the work went hand in hand with an improved nursing service and an improved midwifery service, all of which would take time to develop, particularly with regard to the necessary personnel. The latest work to be developed was in connexion with the treatment of the blind. The committee which had been engaged on the subject since 1917, with regional committees, had made a full survey of the blind population of the country, had examined all the institutes where training was given, and the Government had recently sanctioned the provision of £125,000 this year, for which a supplementary estimate would be submitted, to be distributed in assisting the blind in workshops, in homes, in hospitals, for home teaching, and for miscellaneous services.

Dr. Addison devoted the remainder of his speech to a consideration of the difficulties encountered in respect of housing schemes, but spoke hopefully of the future.

Lieut.-Colonel Raw said that it was reckoned that tuberculosis was killing about 60,000 persons in this country every year, and it was estimated that a million people in Great Britain were at present affected by the disease. With the advent of the Ministry of Health a much greater effort would be made to stamp it out. He advocated much more generous treatment, and especially that facilities should be provided free at the national expense for the treatment of all persons in the early stages. He suggested that the Government should undertake some great educational campaign in this connexion and should take complete control of the milk supply.

Sir Montague Barlow said that the report of the Committee as to the treatment of tuberculous soldiers would be ready this week or early next week, and he urged that the matter should be taken in hand at once.

Major Astor, in reply, said that the total number of tuberculous soldiers who had been discharged in the United Kingdom was 35,000, and there were now in institutions undergoing treatment about 3,000. There were 300 soldiers and a large number of civilians waiting treatment. The army had vacated some buildings, but had brought back to this country men suffering from wounds, so that it had not been possible to get hold of as many institutions as would otherwise have been possible. As regards the number of deaths from tuberculosis, in 1914 the total was 38,000, and in 1917 it was 43,100. Those figures must not be taken too rigidly. He believed that diagnosis was improving, but the figures showed no diminution. Co-ordination at the centre under the new Ministry of Health would assist enormously in dealing with this disease. Without fresh legislation, Major Astor added, as regards tuberculosis, the department had gone on the lines that it was better to make provision for treating the population as a whole rather than to provide special machinery for tuberculous ex-soldiers, for example. The whole tendency would be against specializing for any department, their desire being to make their local authorities and local medical officers competent to deal with various problems that might arise.

After some further debate progress was reported.

Nurses' Registration Bill.

The Nurses' Registration Bill, introduced as a private measure by Major Barnett, was considered in the House of Commons on June 27th, on report, as amended by a Grand Committee. The Minister of Health, Dr. Addison, interposed at an early stage to say that the Government had considered the matter carefully since the bill passed through Committee, and had discussed it and the bill introduced in the House of Lords with the various parties interested, with the hope of obtaining agreement, but the conferences had convinced him that this was not possible. While everybody agreed that the registration of nurses was desirable and necessary, those who were interested in the two bills were not by any means agreed as to what was implied by registration. In some quarters it was thought that the authority responsible for registration should deal with the conditions of training—not only the standard reached, but the conditions and conduct of training. In the parallel case of the General Medical Council it laid down the standard attainable but did not conduct the medical schools. The conferences showed that some thought that the body responsible for the register should also control the conditions of employment, which, again, was a function quite apart from the semi-judicial purpose of such a body. He quite agreed with those who attached importance to the conditions of employment of nurses; nurses had been scandalously underpaid and grossly overworked, but that was not the function to be exercised by a semi-judicial body, which had to decide who had to be on the register. The differences on these and similar subjects were so great that it was impossible to bring about agreement. The controversy appeared to have been unfortunately mixed up with personal and sectional issues which could not be reconciled. On behalf of the Government he undertook at the earliest moment to introduce a measure providing for the registration of nurses. So far as possible he would consult the various parties as to its general and main purposes. Whilst on the one hand the Government could not saddle a registration authority with duties that did not properly belong to it, nor promote the interests of any sectional institution, on the other hand it could deal with public interests. The Government was prepared to make proposals to give effect to registration as soon as possible, subject to the exigencies of the session. On that understanding he thought it might be for the convenience of the House if neither of these bills went any further. The Government was very cognizant of the tact and patience shown by Major Barnett who was in charge of this bill, but if it did go to the report stage that day, its chances of finding its way to the Statute Book would still be very small indeed. The offer of the Government was not accepted, and the debate continued until progress was reported.

Disability Pension.—Mr. Newbould asked, on June 24th, whether the Pensions Minister would explain why the 20 per cent. bonus was payable on disability pensions awarded under the warrants of 1917–18 and not on pensions under earlier warrants. Sir James Craig (Parliamentary Secretary to the Ministry) said that the Minister was looking into the matter, and would be glad to answer in a week or two. A man who on demobilization and transfer to the Reserve was found to have a disability caused or aggravated by his military service was entitled to a pension or gratuity according to his incapacity. If he were refused a pension by the Ministry on the ground that his disability was neither caused nor aggravated by service he could appeal to the Pensions Appeal Tribunal. Mr. Hogge asked whether the assessment by the medical officer on demobilization as to the percentage of disability pension governed the pension, or whether it was decided later by the Ministry of Pensions without seeing the man. Sir James Craig said that in the first instance on demobilization, as far as possible, the necessary form was filled up; if it were not, the medical referee was asked for his opinion, and on that opinion the pension is assessed.

Pensions for the Disabled.

EVIDENCE BY SIR DOUGLAS HAIG.

Sir Douglas Haig gave evidence before the Select Committee on Pensions at the House of Commons on July 1st.

He said that in the late summer of 1918 he was appalled by the evidence received as to the methods of the State to provide for the disabled. Not only were the cases dealt with by the Disabled Officers' Fund brought under his notice, but he daily received letters from all parts of the country with the same piteous appeal. Since then matters had been in some degree improved, but not so far as the officers were concerned. He held strongly it was the duty of the State to provide for those who had suffered in the war, but he was prepared to admit there might be small gaps which might be filled by voluntary effort. The strain thrown on charitable institutions was sufficient condemnation of Government methods and proof of the inadequacy of State Pensions.

In the first place he held it was necessary to have a single authority to co-ordinate and advise the three Ministries—War, Pensions, and Labour—who were affected. The need was foreseen in 1915 by Sir George Murray's Committee, and again brought to notice in 1918 when a conference was summoned of the Ministries of Admiralty, War, and Air, but nothing had been done, and the result was that on discharge, officers were in many cases left penniless. There was no chain of responsibility. The War Office should not discharge until the Pensions Ministry could take responsibility, and the Pensions Ministry should hold until the Ministry of Labour could make provision. Secondly, Sir Douglas dealt with Medical Boards. He said:

"In some cases the members of the Board are ignorant of the actual disease suffered. In others they are lacking in all sympathy and generosity. There is no uniformity in their decisions, and some treat every individual who appears before them as a malingerer. I strongly advise the appointment of a selected combatant officer to act as assessor so as to produce some confidence in the decision. Again, in some cases the disability is reassessed at the Ministry of Pensions to the individual's disadvantage. That this should be done without the individual being seen or heard is contrary to all ideas of British justice."

His third point was that the action of the Government in putting officers on insufficient half-pay was inhuman. Fourthly, he said that delays in Government departments produced much hardship and distress. Fifthly, he advocated a more generous provision for the wives and children of officers and men, and also for the education of their children. Sixthly, he said that the total disability rates for both officers and men were inadequate. The weekly allowance should be increased to at least 40s. Seventhly, he urged a more generous and sympathetic treatment to all who suffered from gas poisoning, shell shock, and neurasthenia. It was admitted that their suitable treatment was no easy matter. Employers were shy of giving them appointments. Immediate reform in the method of treatment was called for. Eighthly, he referred to the attitude of the trade unions; and ninthly, to what he described as "the scandalous treatment of those who had earned pre-war pensions."

After paying tribute to the courtesy and sympathetic attitude of the present Minister of Pensions and to the excellent work of the present officers, Sir Douglas appealed for:

1. A greater generosity on the part of the State.
2. A single authority to co-ordinate the work of Ministers.
3. An improvement in the machinery, which was working laboriously but too slowly and in many cases unsympathetically.

Scotland.

At the meeting of the Court of the University of Edinburgh on June 16th it was resolved to institute a diploma in public health, and a scheme of regulations drawn up by the senatus was approved.

EDINBURGH ROYAL INFIRMARY.

At the meeting of the managers of the Edinburgh Royal Infirmary on June 23rd the following were elected to the honorary staff:

Assistant Physician: Charles M'Neil, M.A., M.D., F.R.C.P. Edin.

Assistant Surgeons: John Fraser, M.C., M.D., M.Ch., F.R.C.S.Edin.; James M. Graham, M.B., Ch.B., F.R.C.S.Edin.; Alexander Pirie Watson, O.B.E., M.A., M.B., Ch.B., Ch.M., F.R.C.S.Edin.; and Frank E. Jardine, M.B., Ch.B., F.R.C.S. Edin.

UNIVERSITY OF GLASGOW: HONORARY DEGREES.

At the graduation ceremony on June 25th honorary degrees were conferred for the first time since the outbreak of the war. Among the recipients of the honorary degree of LL.D. was Lieutenant-General Sir W. Babtie, V.C., K.C.B., K.C.M.G., A.M.S., who received a very cordial welcome when introduced by Professor Glaister as one of the three Glasgow graduates who had won the Victoria Cross. Afterwards the university entertained the new doctors at luncheon in the Examination Hall, under the presidency of the Principal, Sir Donald MacAlister, who gave a toast to the twenty-two doctors just added to the roll of graduates. Sir William Babtie, in acknowledging the honour, said that in the great war which had just closed it was only by the assistance of the universities, of the medical schools, and of the whole profession of medicine, that the Royal Army Medical Corps had been able to achieve the success which had attended its organized efforts. That corps had been as much concerned with the prevention of disease as with the cure of the sick and wounded. Whether attention were directed to prevention of disease in its highest phase, or to the dietetic problems of rationing at home and abroad, or to the development of artillery and high explosives, or to the manufacture of and protection from poison gas, or to the applications of electricity and of the internal combustion engine to aërial and submarine warfare, and, above all, to transport, it was safe to say that without science, despite the courage and endurance of our soldiers, it was clear that success could not have been achieved. Science and courage were complementary. Science of itself could have done nothing without the dour courage of men, tried as soldiers had never before been tried in the history of war, because science had made war so indescribably terrible. It was the business of the soldier to face death and wounds, but to both science had added the horrors of Hell. Yet men had dared all and endured, because the same agency had preserved their health, had cared for their physical and, he might say also, their spiritual welfare. It was that which had brought the nation through the test it had endured. Colonel John Buchan, who received the same degree, also replied; he asserted that the Territorial and service battalions of the Glasgow regiments were not excelled by any troops in any army for courage and faithfulness. Whether they were required to make a stubborn defence or an uphill attack they never failed. Their qualities were a humorous stoicism in defence and a genial ferocity in attack.

GLASGOW EAR, NOSE, AND THROAT HOSPITAL.

At the annual meeting of the Glasgow Hospital for Diseases of the Ear, Nose, and Throat, the chairman referred to the purchase of property in St. Vincent Street as a site for new hospital buildings. The accommodation would provide at least forty beds, a large and fully equipped outdoor department, and adequate accommodation for the nursing staff. He said that while the managers believed in the voluntary hospital system, something must be done to ease the situation, or the system would no longer be equal to the demands made upon it. The adoption of the medical report was moved by Dr. J. Galbraith Connal and seconded by Dr. Freeland Fergus, who said that there was now a proposal to extend panel practice to include special branches, such as diseases of the ear, nose, and throat, and of the eye. If the changes made for improvement they were to be welcomed, but he was not sure that ordinary panel practice had been of much service to the community. He thought it had been a failure. The State never managed anything so well as the private individual who had a personal and vital interest.

Ireland.

PENSIONS UNDER THE LOCAL GOVERNMENT (IRELAND) ACT, 1919.

THOUGH the main object of the Local Government (Ireland) Act, 1919, is to give legal effect to the principle of proportional representation at local elections, it contains some very important provisions with regard to pensions, which will be of much interest to Poor Law medical officers, as heretofore the granting of pensions to such officials was optional with boards of guardians and district councils. Section 8 (1) and (2) of the Act states that:

If any officer of a local authority who holds on the passing of this Act a pensionable office is removed from his office for any cause other than misconduct or incapacity, or resigns his office with the sanction of the Local Government Board, he shall, without prejudice to any other right, be entitled to receive from the local authority an allowance not exceeding two-thirds of the salary, fees, and emoluments which he was in receipt of at the time of the removal or resignation, and not less than an allowance calculated according to the scale provided by the Superannuation Acts, 1834 to 1892, and the rules thereunder, if at that time he has served as an officer of the local authority for not less than ten years, or a gratuity according to the scale in Part 1 of the seventh schedule to the Local Government (Ireland) Act, 1898, if he has so served for less than ten years, and the right to and amount of any such allowance or gratuity shall, in case of dispute, be determined by the Local Government Board.

The Local Government Board shall not give their sanction to the resignation of an officer for the purposes of this section unless they are satisfied that, owing to changes made without reasonable cause in the conditions of his employment after the passing of this Act, his position has been materially altered to his detriment; or that he has become incapable of discharging the duties of his office with efficiency by reason of permanent infirmity of mind or body; or that he is not less than sixty years of age and has served as an officer of the local authority for not less than twenty years.

MINISTRY OF HEALTH ACT, 1919.

The Ministry of Health Act provides that the Chief Secretary shall be Minister of Health for Ireland, and that it shall be his duty as such Minister to take all such steps as may be desirable to secure the preparation, effective carrying out, and co-ordination of measures conducive to health, including measures for the prevention and cure of diseases, the avoidance of fraud in connexion with alleged remedies therefor, the treatment of physical and mental defects, the treatment and care of the blind, the initiation and direction of research, the collection, preparation, publication, and dissemination of information and statistics relating thereto, and the training of persons for health services. The constitution of the Irish Public Health Council was indicated a fortnight ago, when the appointment of Dr. E. Coey Bigger to be chairman was announced. The chairman will receive a salary and the other members of the council reasonable compensation for loss of remunerative time.

PROFESSOR CORNET has given an account (*Paris Médical*, May 24th) of the medical conditions of the Grand Duchy of Luxemburg. The total population is about 267,500, and the number of medical practitioners is 123. The capital, with a population of 20,000, has 34 doctors. There is a fine laboratory of bacteriology under the direction of Dr. Auguste Praum, a former pupil of the Pasteur Institute, Paris. Dr. Praum is also president of the Société des Sciences Médicales, which is one of the three sections of the Grand-Ducal Institute, the other two being devoted to history and natural science. At a meeting held in January last the society passed a resolution that the interest of the university studies and the medical future of Luxemburg demanded a close intellectual union with France. At present there is no higher teaching in the Grand Duchy, and for the legal practice of medicine it is sufficient to have a State diploma granted after examination by a medical commission.

Correspondence.

PROFESSIONAL CONFIDENCE.

SIR,—The attention of the Council of the Medical Defence Union has been drawn to certain remarks (reported in *Berrow's Worcester Journal* of June 7th) made by Mr. Justice Bray in a case tried before him at the Worcester Assizes at the beginning of this month.

The case in question was the prosecution of an unmarried woman for alleged concealment of birth. The medical man, who was called in six hours after the birth, was unable to find the body of the child, and, after considering the matter, decided that his duty to the patient precluded him from making any communication to the police.

The police, however, upon the matter being subsequently notified to them, took a different view, and adversely commented upon the doctor's conduct. He accordingly consulted the Medical Defence Union, which upheld his action in not reporting the matter to the police, on the ground that had he done so he would have been guilty of a breach of professional confidence. At the assizes the woman was found "not guilty." At the conclusion of the case the judge called the doctor in question into the box and addressed him, according to the report from which we quote, to the following effect:

> . . . The judge said that he saw that in the depositions the doctor had stated that, knowing that a child had been born in the room, probably recently, he did not think it was his duty to inform the police; in fact, it would have been a gross breach of professional confidence if he had informed the police, and he protested most strongly against the police reporting the matter.
>
> The judge added that in his opinion the doctor was quite wrong. There was no professional confidence in criminal cases of this kind, and it was his (the doctor's) duty to inform the police at once in a case like this. The doctor could understand the importance of it because it was possible that the child might have been still alive, and in that case it was the duty of the police to make inquiries. There was no professional confidence to prevent him giving information to the police. "I want you to please remember that," added the judge, "I am not blaming you for taking that view, but I think it is important that it should be known that the view you took was wrong."
>
> Dr. Standring: "The Medical Defence Union instructed me that I was absolutely correct."
>
> The judge: "The Medical Defence Union is wrong. If you had your attention called to a patient committing the offence of cutting another man's throat it would be your duty to go and inform the police. There is no difference between a small and a big offence."

Apart from the fact that in the case which had been tried a verdict of "not guilty" had been returned, the Council of the Medical Defence Union is unable to accept the analogy attributed to the learned judge as a fair one, or to allow that the cases are in any way comparable.

The standpoint taken up by the medical profession on this subject has more than once been challenged by the legal profession. The Council nevertheless maintains that the duty a medical man owes to his patient is paramount.

Assured as it is on this important question, the Council feels it incumbent upon it to continue to advise any member seeking the guidance of the Medical Defence Union that any communication made to him by a patient and any information acquired by reason of his attendance upon such patient are confidential, and that without the authority of the patient a medical man is precluded by the accepted canons of his profession from disclosing such information to any one.

In adopting this attitude the Council feels it will have the support of all those members of the profession who desire to maintain inviolate that trust and confidence which is reposed in them by their patients.—I am, etc.,

JOHN TWEEDY,
President.

Medical Defence Union,
4, Trafalgar Square, W.C.2, June 27th.

INFECTIVE CATARRHS—SO-CALLED "COLDS."

SIR,—The letter of Drs. Millard and Spriggs in the BRITISH MEDICAL JOURNAL of June 14th concerning colds is, I think, most valuable. While cold may provoke illness by lowering the defensive mechanisms, heat stagnation may also do so, and is, I think, the cause of a far greater impoverishment of health and increased morbidity and mortality. Heat stagnation arises from the common attribution of illness to chills. Pepys in his *Diary* attributes symptoms, obviously due to the stone from which he suffered, to chill from sitting out on the edge of his bed. Evelyn recognized that his son—an infant prodigy of learning—was heat suffocated by women, who piled coverlets on the boy when sick of a fever.

The fear of cold goes back, then, a long way, and has become fixed in the nation. The lore handed down from mother to child has a far more potent influence than all the teaching of modern hygienists; the belief in open air has scarcely spread beyond the most educated class, as is shown by the very few windows that are to be observed open in any street of modest dwellings in the early morning hours. The medical profession by the use of the word "chill" keeps up a false etiology in the public mind, while pandering to over-indulgence in food and neglect of bodily exercise. The correct and rapid diagnosis and treatment of infective disease is, too, hampered by the belief of the profession in chill as a chief cause of illness. I would suggest that a "fug" should take the place of a "chill" in talking of infective respiratory catarrh, and a "glut of" in place of a "chill on" the bowels in talking of alimentary symptoms produced by overeating and lack of exercise. But if such words are used the practitioner must be paid, and liberally paid, by the State for preventing illness.—I am, etc.,

Loughton, June 26th. LEONARD HILL.

MEDICAL APPOINTMENTS UNDER THE MINISTRY OF PENSIONS.

SIR,—Your correspondent "Senex" (June 21st, p. 784) states the case for men between 50 and 60 who gave up their practices and took posts under the Ministry of Pensions. I also am between 50 and 60, but as a pre-war Territorial I have served over four years in France—before the armistice—as a front line medical man. By that I mean that my service has always been with a division, as a field ambulance medical officer, and not in the rear area with casualty clearing stations, base hospitals, etc. Having now returned to an inevitably attenuated practice, I hold that my claim to a Ministry of Pensions medical appointment is superior to that of "Senex" or any younger man who has not served abroad. So far the Ministry of Pensions has not seen it, and I know that jobs are still being offered to men in their forties who have never crossed the Channel.

Can a list be obtained of such posts and of the men holding them, along with a record of their war service and their age? This would clear the air, and those situated like myself look to the British Medical Association to do it.—I am, etc.,

June 25th. IN ARDUIS FIDELIS (T.F.).

SUDDEN DEATH UNDER AN ANAESTHETIC.

SIR,—With reference to the discussion on this subject in the last two issues of the JOURNAL, I have been asked many times whether open ether is suitable for children of all ages, or only used for adults; and more than one correspondent has suggested that "the injection of gr. $\frac{1}{100}$ of atropine appears much too large for young children." In reply, I may say that "open ether" (preceded by the hypodermic injection of gr. $\frac{1}{100}$ of atropine) is administered to practically all my patients, from six months upwards, for the operation of enucleation of the tonsils by dissection, and I have never seen any evil results from the employment of that dosage of atropine.—I am, etc.,

London, W., June 30th. HERBERT TILLEY.

SIR,—We are nothing if not practical, and I do not think we are quite out of the wood yet. I readily admit that open ether administered by a highly skilled anaesthetist is the best and safest for the operation of enucleation of tonsils, but if one drops in to one of the big institutions in London where large numbers of these cases are dealt with almost daily, one rarely finds open ether being given by leading anaesthetists, but much more often those much decried drugs ethyl chloride, chloroform, or CE_2, administered by less experienced men, and why? Because motives of time saving and economy come into action since the cases are so very numerous (note one operator's 18,000); and yet one child's life is as valuable as another's. At the risk of appearing unorthodox, I ask

the pertinent question whether it would not be better to more carefully pick the cases and dispense with enucleation in half or more, as the best way of escaping from the difficulty.—I am, etc.,

London, W., June 30th. W. H. KELSON, B.S., F.R.C.S.

SIR,—The correspondence in your issue of June 21st is of great interest, and it is satisfactory to note the great reputation of some of the contributors to it.

The conclusions to be plainly read in it are of immense importance—that chloroform is a protoplasmic poison and ether a satisfactory and abundantly safe anaesthetic. These facts have of course long been known, but their recognition in the operation of removal of tonsils and adenoids has been for some reason hitherto dismissed. I am not sure that surgeons themselves have not been responsible for it. Be that as it may, we can now afford to leave the explanation of sudden death from chloroform—the paradoxical claim that small doses may cause fibrillation of the heart when large doses are safe; whether, indeed, the explanation may not really be one of *relative* overdosage by reason of intercurrent asphyxia—to the physiologists.

The practical point established for the surgeon and anaesthetist is that ether is a safe and sufficient anaesthetic, and there cannot be too much insistence upon and dissemination of this teaching.

For the operation in question deaths have been and continue to be deplorably common; the time seems almost to have arrived when, in every fatal case, a coroner should ask, What anaesthetic was used, and why?—I am, etc.,

London, N.W., June 21st. ALEXANDER BROWN.

SIR,—We are indebted to Dr. Gabbett for raising the important question of anaesthesia for the removal of tonsils. I have been lucky not to have a single death in my own experience of over 8,000 cases during a period of nearly fourteen years' special work, but some cases have caused temporary anxiety. This anxiety has occurred before the commencement of the operation, and in most cases was due to obstruction of the airway. Such obstruction is frequently caused by opening the gag widely without pulling the jaw forward by the finger behind the incisor teeth, also by the falling back of the tongue, which should always be drawn out by a suture, or by one of the many tenaculum tongue forceps.

The arrest of respiration produced by pulling the tonsils forwards and inwards does not occur during moderately deep anaesthesia, and it is abolished by swabbing the surface of the tonsils and fauces with cocaine. I believe this arrest of respiration is due to a reflex closure of the larynx.

With these precautions, I am of the considered opinion that there is no danger peculiar to the tonsil-adenoid operation with any anaesthetic. Moreover, this operation is many times more frequent than any other surgical operation, and it is improbable that the percentage of deaths is any higher.

In order to diminish the depth of anaesthesia necessary for this operation, I have for many years swabbed the surface of the tonsils and fauces with a 20 per cent. solution of cocaine to which has been added an equal quantity of 1 in 1,000 adrenalin. This method has the double advantage of diminishing the superficial haemorrhage and of producing a vigorous reflex during its application, if the patient is insufficiently anaesthetized.—I am, etc.,

London, W., June 23rd. EDWARD D. D. DAVIS.

INTRAVENOUS INJECTION OF ANTIMONIUM TARTARATUM IN KALA-AZAR.

SIR,—Dr. Low, in his article in your issue of June 7th, raises the question whether kala-azar is indigenous in Mesopotamia. I fear it will be found that this is the case. During the summer of 1918 I diagnosed kala-azar in two British patients invalided to Bombay. They were demonstrated at a meeting of the Military Medical Society, and I think it is clear that they must both have acquired the infection in Mesopotamia. My patient, an officer, was taken ill at the end of December, 1917, in Amara, and when admitted to hospital had no enlargement of the liver. When he came under my care in Colaba War Hospital, Bombay, there was considerable enlargement. He was treated with intravenous injections of antimonium tartaratum and recovered completely. The other patient was not under my care; he also received intravenous injections and had greatly improved when I left India. I hope to publish details shortly; a brief reference to these cases was made in the *St. Bartholomew's Hospital Journal* for January.

The Arabs appear to recognize some such disease, for I am informed that they differentiate two varieties of Baghdad boil, one of which they think is followed by generalized disease; and I am informed that before the war women used to come down to Basra from Baghdad and inoculate on the leg with the "male" or less toxic sore as a prophylactic against the more serious "female" lesion.—I am, etc.,

PHILIP HAMILL, M.D., F.R.C.P.,
London, W.1, June 15th. Late temporary Major R.A.M.C.

INCREASED GRANTS TO INSURANCE PRACTITIONERS.

SIR,—In your issue of June 28th I was interested in a letter from the Secretary of the National Insurance Joint Committee to the Medical Secretary of the British Medical Association which was very typical of the usual Civil Service evasiveness. In this case the fallacy of the reasoning was too obvious and glaring to pass muster. The data taken for increased remuneration were the increased costs of the necessities of life, and incomes of £160 and £1,600 were compared, but—with a very big *but*—the first figure, £160, is, I take it, a *net* income, and what is the doctor's £1,600, particularly in a rural area? Take away the expenses of the practice and you reduce the figure at once by about half. I should like to see it firmly and gently pointed out to the National Insurance Joint Committee that out of our gross income (bonus, etc.) we have to pay increased expenses as first charge before we have anything to live on.—I am, etc.,

Withern, Alford, Lincs, June 28th. A. A. J. MCNABB.

SIR,—I trust Major Astor's charity dole of a substantial increase in panel practitioners' war bonus for 1919 will not tend to obscure the question of a permanent increase in the income limit of the insured from £160 to £250.—I am, etc.,

Crawley, Sussex, June 29th. SIDNEY MATTHEWS.

INSURANCE TERMS AND CONDITIONS.

SIR,—A large panel list is not always acquired in the fashion described by Dr. Tibbles. Certainly a great number are acquired by the money power as by purchase (which is a criminal act in Germany, the home of this sort of cheap collective nonsense). Many enormous panel lists were established in Manchester, Birmingham, etc., from the mere fact that in populous areas every manual worker, who previously never had dreamt of doing so, was compelled to choose a doctor.

Many approved societies sent their members to particular doctors, even going so far as to pay half the fee their favourite doctors charged for examination, to eliminate the unfit from their lists.

Many doctors cut out all old and new patients who would be likely to give trouble, thus ensuring, like the cuter insurance companies, a safe quarterly cheque of unearned increment.

When the Manchester Insurance Committee limited incomes from insurance work to £800 many partnerships were offered, even though the practices had only been established a few months. There is certainly some popularity and no doubt a little energy required in these instances. It looks to me more like commercial acumen than professional success.

The framers of M. 25 have a good deal to learn if they expect new medical men to fall over each other looking for 150 insured grumbling incurables to start practice with at contract rates. If this is reconstruction then it is no wonder that the older men are glad they are retiring. Why not start *de novo?* The Labour party are seeing to it that employers carry out their obligations in direct wages to their employees and there is no necessity for commercial competition of the contract type in the

profession. There is ample work for all, and if owing to the high state of taxes, rates, and living there is a class who need help, then the tariff of the National Deposit Friendly Society would be a good one for work done, the patient where possible supplementing it out of his own earnings. With such a scheme commissions, bribes, touting, and all the hundred and one ways of securing favours from the officials, etc., of the collecting societies would be done away with and the individual would be able to choose his own practitioner, and no doubt with his increasing intelligence in these matters would go to the most skilful. If by popularity from this skill a doctor got too much to do he would be able to pass it on to a professional brother and not a commercial competitor, and he would retain his efficiency, which under the present system he always loses by trying to do too much, and his commercial success is more often than not a professional failure.—I am, etc.,

Burnley, June 30th. J. I. HALSTEAD.

SIR,—During an interesting meeting at the Essex Hall on June 27th a point emerged which I think should not escape the notice of the profession.

In the first place, this meeting was very insistent that there must be two central pools—one for any extra services and one for the present range of general practitioner service. I think there were none in favour of a common pool on which special services might be made a prior charge. The meeting, having adopted this attitude, next wished to know what increase of payment was going to be made for the present range of service. We know the income limit is to be raised, we have not heard that our fees are to be correspondingly raised. Here Mr. Smith Whitaker, who was present to elucidate the Commissioners' point of view, told us a very important fact—namely, that in fixing our remuneration account will be taken of the fact that in 1913 we were granted an extra half-crown for keeping records which we have since ceased to keep. Of course, we know well enough that the extra half-crown was given because it could not be refused (how often has the British Medical Association boasted of its part in this), and that the useless records were put in to save the faces of politicians. This will not avail. In your own columns last week it was stated that there is to be no extra remuneration for the present range of services, even with increased income limit.

And yet the British Medical Association is content to leave discussion of payment for a later date. Let us be fairly met as to payment for present services (not by a system of bonuses that a miner would laugh at) and we will willingly discuss extra services. That there is no intention of meeting us fairly is shown by Mr. Smith Whitaker's admission and your own columns.—I am, etc.,

Sevenoaks, June 30th. GORDON WARD.

SIR,—I fancied that Drs. Cowie and Richmond would wish to give some explanation to the 1,400 panel men of London whom they represented of their extraordinary behaviour at the conference of Local Medical and Panel Committees called by invitation from the Medico-Political Union. They seem to be upset at my saying that M. 25 was issued by the Commissioners as well as the Insurance Acts Committee. I beg to enclose you, Mr. Editor, the envelope that my copies arrived in from the Commissioners, whilst the second memorandum sent actually bears the marks of the Government printers.

Both gentlemen gave lengthy dissertations on medical politics in general and the Medico-Political Union in particular, quoting freely from the *Medical World*, especially the following resolution passed at the annual meeting of the Union: "That it is not to the interests of the members of the Union to accept any agreement based upon the Report M. 25 of the Insurance Acts Committee of the British Medical Association." "At which" (annual) meeting (of the Union), they continue, "the secretary pointed out very pertinently, in answer to an inquiry, that the Council of the Union were bound by this resolution, but not bound by anything that took place at the conference on June 24th." The council of the Medico-Political Union is not bound by a conference of Local Medical and Panel Committees any more than the Council of the British Medical Association is bound by the findings of its own conferences of Local Medical and Panel Committees, and for that very reason I failed to see their argument or what such a discussion had to do with "the general nature and purpose of M. 25" or its consideration by the delegates present. Therefore I ruled it out of order and the conference agreed. If I was wrong and they had had the feeling of the meeting behind them, they should have voted me out of the chair and reigned in my stead. Such things do happen. But, as it was, the remaining delegates were surprised, if not relieved, at their sudden departure, and the conference continued a normal and most interesting course.

To talk of matters being prejudged is amusing to anyone who has attended one of the group conferences presided over by these gentlemen, using every conceivable argument and threat to make the profession accept M. 25. Goodness knows what is the reason for their terrible anxiety to secure an easy passage for it. But I fear Drs. Cowie and Richmond did little to help it forward on June 24th, nor did they do much to increase the prestige of the London Panel Committee or the Insurance Acts Committee, which they represent, with the other delegates, who came from all over England.—I am, etc.,

Ashford, Kent, June 30th. FRANK COKE.

*** We publish this letter as the chairman of the meeting may be considered to have a claim to reply to the best of his ability, but we cannot find space for more letters on this side issue.

HOSPITAL RECONSTRUCTION.

SIR,—Recent correspondence in the BRITISH MEDICAL JOURNAL — especially the illuminating letter from Dr. Flemming of Bradford-on-Avon and the concrete proposals of Dr. Bottomley of Boscombe—indicates two outstanding needs that should be met in any proposals for reconstructing our hospital arrangements. The one is the provision for general practitioners of opportunities of sending such of their patients as require it into hospital and retaining responsibility for their treatment. The other is the provision of hospital accommodation for patients of moderate means.

To secure these two pressing needs most of the correspondents urge the establishment of a new type or types of institution. I believe this to be undesirable, and that those ends could best be attained by additions to or modifications of existing institutions. It is clear that in the near future most voluntary hospitals will need subsidies from local authorities. Those responsible for determining the conditions of such grants should see to it that one such condition should be that a certain percentage of the beds of every hospital are set aside to meet those two requirements.

The carrying on of these different types of hospital work under one roof will promote administrative economy and professional efficiency, it will lead to a highly desirable co-operation between general practitioners and specialists working in different parts of the same institution, and will tend to break down class distinctions, which would only be accentuated by the institution of separate hospitals for patients in different economic positions.—I am, etc.,

London, N.W., June 29th. LAURISTON E. SHAW.

MEDICAL DEMOBILIZATION.

SIR,—I have read with much interest the various letters on demobilization in the JOURNAL and I should like to add another "grouse." This is, that because an M.O. has not got a job or practice to go back to he must therefore be content to stay out here indefinitely as if his future career were of no account. There are many doctors out here wasting their time as battalion M.O.'s, etc., who, although not yet in practice, are dying to get back to make a start, but are compelled to stay on and watch with disgust the newly qualified men getting all the plums. Surely if the young doctors who have seen no service were sent out at once, every army M.O. with over a year's service could come home if he desired.

With reference to the last paragraph of "Medicus's" letter in the JOURNAL of June 14th, every encouragement is given to M.O.'s to volunteer for further service. I have not heard of any one yet being demobilized against his will, and this is certainly not the case with the R.A.M.C. in the Rhine Army.—I am, etc.,

June 24th. R.M.O.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examinations indicated:

SECOND M.B.—*Materia Medica and Pharmacology:* W. H. Butcher, T. H. Cathrall, J. T. S. Hoey, J. G. Johnstone, H. A. Osborn, D. B. Pauw, H. L. Rayner, M. E. Shaw, W. F. Skaife, N. F. Smith.

Pathology: T. A. Brown, C. K. J. Hamilton, J. T. S. Hoey, H. A. Osborn, H. L. Rayner, N. F. Smith.

Forensic Medicine and Public Health: L. G. Brown, W. H. Butcher, F. B. Chavasse, W. T. Collier, F. G. Hobson, B. G. von B. Mellé, O. B. Pratt, N. F. Smith, C. P. Symonds.

Medicine, Surgery, Midwifery: L. G. Brown, F. B. Chavasse, J. C. Dixey, F. G. Hobson, O. B. Pratt, N. F. Smith, C. P. Symonds.

Master of Surgery: R. O. Ward.

UNIVERSITY OF LONDON.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

THE Gilchrist Trustees offer through the Council of the London (Royal Free Hospital) School of Medicine for Women, a special scholarship tenable at the medical school by a woman who has served under an organization directly connected with the war during not less than three years since August, 1914. The scholarship is of the value of £50 per annum for five years. Applications must reach the Warden and Secretary of the Medical School, 8, Hunter street, Brunswick Square, W.C.1, not later than July 12th, from whom the necessary form of application and all particulars may be obtained.

UNIVERSITY OF GLASGOW.

AT a graduation ceremony on June 25th the degree of LL.D. *honoris causa* was conferred upon Lieutenant-General Sir William Babtie, V.C., K.C.B., K.C.M.G., and that of D.Sc. upon Dr. William M. Alexander for a thesis on research in Egyptology.

The Asher Asher gold medal prize in laryngology and rhinology has been awarded to Mr. Duncan M. Blair.

UNIVERSITY OF ST. ANDREWS.

THE following candidates have been approved at the examinations indicated:

THIRD M.B., CH.B.—*Materia Medica:* T. K. Buchanan, Katharine M. Campbell, Georgina S. Craig, D. W. Dawson, Mary Ellison, V. S. Ewing, H. Fisher, Phyllis Fleming, Annie A. Fulton, A. H. Harkins, L. Jacobs, Isobel M. Mansie, R. S. Paton, J. N. D. Smith, J. D. Stewart, Eleanor C. Thistlethwaite, Christina J. Thomson, Margaret L. Tod, Margaret H. R. Young.

Pathology: T. K. Buchanan, Katharine M. Campbell, Georgina S. Craig, D. W. Dawson, V. S. Ewing, H. Fisher, Phyllis Fleming, Annie A. Fulton, A. H. Harkins, L. Jacobs, Isabella D. Kilgour, Christian E. Little, Katharine D. Macfarlane, Elizabeth W. MacVicar, R. S. Paton, J. D. Stewart, M. M. Stewart, Eleanor C. Thistlethwaite, Christina J. Thomson, Margaret L. Tod, Margaret H. R. Young.

Forensic Medicine and Public Health: Bessie M. Davidson, Mary Ellison, Jean H. D. Fleming, Mabel Hodgson, Frances L. Knipe, Margherita M. Lilley, Christian E. Little, Kathleen M. Lyon, J. B. Macdonald, Gracie M. McRorie, W. G. Robertson, M. M. Stewart, Eleanor C. Thistlethwaite, Amelia MacD. Thoms, Olive M. Whyte.

FOURTH M.B., CH.B.—W. Alexander, J. M. Clark, J. M. Craig, Caroline R. Crystal, Lorna Lennox, Janet M. Macmillan, Mary R. Mitchell, Phyllis Montford, Gladys J. C. Russell.

Obituary.

ALEXANDER SCOTT, M.D.,

Certifying Factory Surgeon for South-East Glasgow and Tollcross.

ALEXANDER SCOTT, who died in April last, if asked what were the red letter days of his life, would probably have said the day of his appointment in 1877 as certifying factory surgeon for Tollcross, the day when in recognition of his special knowledge and interest he was made medical referee for all industrial diseases under the Workmen's Compensation Act in the Glasgow area, and the day when, in appreciation of his unobtrusive solicitude for the health and welfare of the boys in the Parkhead Reformatory School, he was asked by the then Inspector of Reformatory and Industrial Schools to visit and report on acute febrile illness prevalent in another similar school.

Most of all was he proud of his position as certifying surgeon, which enabled him to examine boys and girls as to their fitness for employment, and to give them the first word of encouragement and advice in their start in life, as he has described in his papers on "Medical inspection and supervision of workers in factories" in 1902, "The training of youth" in 1907, and "Deformity as a cause of industrial inefficiency" in 1916. He valued the chance the post gave him of investigating cases of industrial poisoning, which he followed up with zest. Every such inquiry was a source of excitement to him, and none was ever treated as a matter of routine. Thus, in 1887, he published an account of cases treated by him of lead poisoning contracted in chrome dye works and pointed out how they could be stopped by the provision of fans, overalls, baths, washing accommodation, and a "dining hall." In 1896 he described in this JOURNAL a case of loss of memory and another of dementia, among the first ever recorded of the permanent after-effects of carbonic oxide poisoning.

"Wasn't that interesting now?" was his usual way of ending his story, perhaps accompanied by as infectious and hale a laugh as any man ever had, and on parting a handclasp that scrunched the bones; but that he found his cases interesting was simply due to the fact that he could not do anything in a perfunctory way. During the war he helped with the best kind of help a medical man could give in a munitions factory—namely, by using his clinical knowledge in the examination of workers and assigning to them the work for which they were fitted, following this up by subsequent examination of those whom he thought needed it, advising the management in cases where a medical opinion was desirable, and superintending the first aid equipment and the use made of it in the workshop and ambulance room.

He was happy in his family—three sons, two in the R.A.M.C., served throughout the war, gaining the M.C. and M.M. His personality endures.

THE HONOURABLE SIR JOHN McCALL, K.C.M.G., M.D., LL.D.,

Agent-General for Tasmania in London.

WE regret to record the death, on June 27th, of the Hon. Sir John McCall, K.C.M.G., at a nursing home in London, after a fortnight's illness. He was born at Devonport, Tasmania, in 1860, and was the son of the Hon. J. H. McCall. After studying medicine at the University of Glasgow he graduated in 1881, and returned to practice in Tasmania. In 1888 he was elected to the Tasmanian House of Assembly as the member for West Devon. He retired five years later, but was re-elected in 1901, and became a member of the Executive Council. In 1902 he was appointed president of the Central Board of Health, and chief secretary in the Propsting Ministry. While holding these offices he was responsible for the complete reorganization of the Tasmanian Health Department, and was in charge of the Public Health Act of 1903. In 1909 he was appointed Agent-General for Tasmania in London. He was knighted in 1911 at the time of the King's Coronation, and was awarded the K.C.M.G. among the last Birthday Honours. At the outbreak of war Sir John McCall, who had long been an active Volunteer officer, offered his services and was appointed medical officer in charge of the first Australian hospital for officers in England with the honorary rank of lieutenant-colonel in the Australian Army Medical Corps. As president of the Australian Natives' Association in London he took a large share in the organization of the Anzac Buffet for Australian and New Zealand soldiers. The Australian Hospital on the golf links at Wimereux owed much to his efforts, and the King of the Belgians recently conferred upon him the Order of the Crown in recognition of his aid in organizing a Belgian military hospital in the south of France. Sir John McCall was twice married, and leaves a widow and four children.

GEORGE WILKS, M.B., B.C.CANTAB.,

Ashford.

DR. GEORGE WILKS, of Ashford, died on June 11th in his 79th year. He was the elder son of Dr. George Frederick Wilks, a native of Charing, near Ashford, where his father and other members of the family were doctors before him. He was educated at King's College School, London, at Dresden, and at Trinity College, Cambridge, where he took the B.A. degree with honours in the mathematical tripos of 1863. He studied medicine for two years at Addenbrooke's Hospital under Sir George M. Humphry, and then went to St. Bartholomew's Hospital, where he was a pupil of Sir James Paget. In 1867 he graduated in medicine and surgery at the University of Cambridge and obtained the M.R.C.S. and L.S.A. diplomas, and in the following year he joined his father in practice at 11, North Street, Ashford, the house in which he died. For some years Dr. Wilks was physician-in-ordinary to the Duke of

Edinburgh and his household at Eastwell Park, and attended the Duchess at the birth of the present Queen of Rumania, and of Princess Beatrice of Saxe-Coburg. In 1907 he was elected Master of the Society of Apothecaries of London, and from 1912 to 1917 he represented the society on the General Medical Council. He was an excellent musician, and for years conducted oratorio performances and concerts throughout South and East Kent. Taking an active interest in the affairs of his native town, he was for twenty-five years a member of the old local board and of its successor the urban district council, of which he was chairman for seven years. During his chairmanship a number of schemes for the improvement of the town and its sanitation were carried out. In 1895 Dr. Wilks was made a Justice of the Peace for the County of Kent. He was honorary secretary of the Ashford Cottage Hospital throughout the most anxious period of its history, and on his retirement from the active medical work of the staff in 1906 he was presented with a silver tray and a cheque for £150 in recognition of his great services to the institution; the cheque, it may be added, was promptly handed to the hospital by Dr. Wilks to form an emergency fund. During the last few years failing health forced him to relinquish most of his public duties. Genial, enthusiastic and full of energy, a ready speaker and an able organizer, George Wilks set an example of what a medical man may become in the life of an English country district.

WE regret to announce the death, as the result of a boating accident, of Dr. E. G. FEARNSIDES, assistant physician to the Hospital for Epilepsy and Paralysis, Maida Vale.

SURGEON-GENERAL PHILIP MACKAY ELLIS, C.B., J.P., Army Medical Staff (retired), died at Pwllheli, Carnarvonshire, suddenly, on May 16th, aged 64. He was born at Madeira on January 30th, 1855; took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1876, and entered the army as surgeon in 1877, and became surgeon-general in 1908, retiring in 1910. He served in the Burma campaigns of 1886–87, receiving the medal with a clasp. During the great war he was county director of the British Red Cross Society for Carnarvonshire.

DR. HENRI HALLOPEAU, physician to the Saint-Louis Hospital, who died recently at the age of 78, was born in Paris in 1842. He graduated in 1871, and was appointed physician to the hospital in 1877. He became agrégé in 1878, and was elected a member of the Académie de Médecine in 1893. Before devoting himself to the study of skin diseases he wrote a treatise on general pathology which appeared in 1884, and till 1904 was the authoritative work on the subject in France. It was translated into Spanish, Greek, and Turkish. He produced in conjunction with Leredde a treatise on dermatology and a monograph on syphilis, written in collaboration with Fouquet. In addition to these works he was the author of more than eight hundred publications ranging over the whole field of dermatology. On his retirement from Saint-Louis under the age rule in 1907 he became consulting physician to the Maison Départmentale of Nanterre, where he continued to work till October, 1918, when increasing failure of sight and other infirmities compelled him to give up active work.

IT is reported that Professor ALBERT DÖDERLEIN, the distinguished gynaecologist, was among the hostages shot at Munich during the recent political disturbances. Born in 1860 he graduated in 1884, and, after holding the chair of obstetrics and gynaecology in the Universities of Groningen and Tübingen, accepted a call to Munich. He was the author of numerous publications on puerperal fever and various gynaecological subjects.

LIEUTENANT GEORGE HENRY FOSBROKE POWER, 6th, attached 3rd, Battalion Middlesex Regiment, younger son of Lieut.-Colonel Sir D'Arcy Power, K.B.E., R.A.M.C.(T.F.), surgeon to St. Bartholomew's Hospital, was reported wounded and missing at the second battle of Ypres on May 8th, 1915, and is now presumed killed on that date, aged 21. He was educated at Oxford, where he was a commoner of New College, and President of the University Fencing Club. He got his commission in the 6th (Reserve) Battalion of the Middlesex Regiment on August 15th, 1914.

The Services.

HONOURS.

D.S.O.

Surgeon Lieutenant Commander Norman Sinclair Meiklejohn, R.N., has been appointed a Companion of the Distinguished Service Order for distinguished services in H.M.S. *Caledon*, as senior medical officer, 1st Light Cruiser Squadron.

O.B.E.

The distinction of Officer of the Military Division of the Order of the British Empire has been conferred upon Surgeon Commander Frederick William Parker, R.N., for valuable services as senior medical officer, R.N. Sick Quarters, Invergordon, and upon Surgeon Lieutenant Commander Ernest Lacey Markham, R.N., for valuable services in H.M.S. *Cardoc*, 6th Light Cruiser Squadron.

M.C.

The Military Cross has been awarded to temporary Captain John Campbell, R.A.M.C., for conspicuous gallantry and devotion to duty north of Sherqat (Mesopotamia) on October 27th-28th, 1918. "He showed great skill and a total disregard of danger in tending the wounded under fire. On several occasions, owing to the intensity of the enemy's fire, he had to move his aid post, but in spite of all difficulties he managed to evacuate all cases successfully."

Medical News.

THE annual dinner of past and present students of St. Thomas's Hospital will take place at the Connaught Rooms, London, W.C., on Wednesday, October 1st, when Sir George Makins, G.C.M.G., C.B., President of the Royal College of Surgeons, will preside.

A DANCE in aid of the Royal Medical Benevolent Fund Guild will be held at Princes' Galleries on Wednesday, July 16th, at 9 p.m. Tickets (one guinea, including supper and bridge) may be obtained from Miss Tweedy, 100, Harley Street, W.1.

ACCORDING to the *Boston Medical and Surgical Journal*, 47,862 American soldiers were treated in British hospitals during 1918. Of this number about one-fifth were wounded or injured, the rest were cases of sickness. At the time of signing the armistice 9,310 Americans were under treatment in American hospitals in Great Britain. The United States army personnel working in American hospitals in Great Britain numbered about 3,200.

SIR JAMES SAWYER of Birmingham left £41,310.

THE house of the Royal Society of Medicine will be closed for cleaning during August.

DR. H. E. DIXEY of Great Malvern has been appointed a Deputy Lieutenant for the county of Worcester.

THE Government of the Republic of Nicaragua has established a Pasteur Institute at Managua.

DR. JOSEPH J. CONSTABLE, Senior Physician to St. John and St. Elizabeth Hospital, St. John's Wood, has retired from the active staff of that institution, with which he has been connected for many years. In consideration of his long and valuable service the board of management have appointed him consultant physician.

DR. WILLIAM ALLEN STURGE, of whose work in anthropology some account was given in our columns on April 12th, p. 469, left £13,494. He bequeathed his large collection of prehistoric objects of stone, bone, and horn to the British Museum.

THE annual report of the Board of Agriculture, on its proceedings under the Diseases of Animals Acts for the year 1918, is largely concerned with the outbreak of rabies. The first suspected case was notified in the neighbourhood of Plymouth on August 19th, and its nature finally confirmed on September 7th. It is thought probable, however, that the disease had existed in the country as early as the middle of May, 1918. As to how the first case was imported no proof has been obtained. Owing to the increase of traffic and the diminution of the staffs of the customs and police, strict observance of the regulations had probably been relaxed, and it seems to have been established that dogs have been brought over in aeroplanes to aeroplane stations in this country from France, where the disease, never entirely stamped out, increased during the war. At first there was difficulty in issuing muzzling orders applicable to wide areas, because the number of muzzles available was too small, but the special steps taken to expedite manufacture were believed to have been successful. In all 31 persons were reported to have been bitten by dogs believed to be rabid in 1918: of these

21 underwent Pasteur treatment either in Paris or in Plymouth. In the remaining 10 the evidence was not sufficiently definite, and it was eventually established that these persons had not actually been bitten.

THE University of Vilna in Lithuania, which had been closed since 1832, has recently been reopened. It was founded in 1578 by the Polish King Barthory and restored by the Czar Alexander of Russia in 1803. Lithuania has a population of 2,000,000.

A PAMPHLET entitled *Suggestions for the Care of Malaria Patients* has been issued by His Majesty's Stationery Office (from any bookseller, price 1d. net); it has been drawn up for the information of medical practitioners by Colonel Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S., consultant in malaria to the War Office and the Ministry of Pensions, and Lieut.-Colonel S. P. James, I.M.S. (ret.), medical inspector and adviser on malaria to the Local Government Board. It contains sections on the diagnosis and treatment of malaria and on the prevention of indigenous infection, and sets out the conditions affecting medical practitioners with regard to the notification of cases of the disease. Full directions are given for making blood films, which, in the absence of other arrangements, may be sent to the Medical Department, Ministry of Health, Whitehall, London, S.W.1. With regard to after-treatment, four plans are mentioned: First, ten grains of quinine once daily, at dinner or bedtime; secondly, thirty grains of quinine on two consecutive days weekly; thirdly, thirty grains of quinine on one day a week in three doses of ten grains each, in the early morning, at midday, and in the evening; and, fourthly, the same amount taken in the same manner every tenth day. The degree of success obtained in any of these methods depends, it is stated, more on the arrangements for ensuring that the routine is conscientiously followed than on the particular method chosen.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard.
2. ACTING FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES AND ANSWERS.

THE ELBOW-JOINT.

LIEUTENANT H. T. O'NEILL, R.A.M.C. (Army of Occupation), writes: In the BRITISH MEDICAL JOURNAL of June 14th the review of the book, *Emergency Surgery*, contains the following passage: " . . . Nor do we believe that the bony points of the elbow in any position of the joint form an equilateral triangle." This was rather a surprise to me, because the late Professor Cunningham in his *Manual of Practical Anatomy*, vol. i, fourth edition, p. 57, says: " . . . When the forearm is bent at a right angle the three bony points are placed at the angles of an equilateral triangle, the apex of which points downwards."

*** Our reviewer writes: The matter is entirely one of measurement. It may be that Cunningham's *Manual* states that the "three bony points are placed at the angles of an equilateral triangle," but the statement is not accurate, as any one can verify for himself on his own arms. The base of this triangle—that is to say, the distance from the external to the internal epicondyle—is always greater than any one of the other two sides, and in addition, in most arms which I have measured, the distance between the internal epicondyle and the most prominent point of the olecranon is less than the distance between the olecranon and the external epicondyle.

LETTERS, NOTES, ETC.

A CORRESPONDENT in Natal complains that British publishers of medical books do not in their advertisements state the postage of a volume to an address overseas.

BENZOL FOR MOTOR CARS.

WE stated a few weeks ago on the authority of the Automobile Association and Motor Union that the National Benzol Association had intimated that the price of benzol conforming to the A. A. specification was 2s. 9d. a gallon in 2-gallon tins. Apparently in some places a higher price is charged. The Automobile Association has published a list of benzol retailers, and in this those stocking benzol conforming to the approved specification are distinguished. Motorists can obtain a copy of the list by applying to the Secretary, Fanum House, Whitcomb Street, London, W.C.2. The Automobile Association states that it is informed by the National Benzol Association that the price is 2s. 9d. a gallon in 2-gallon tins, and 2s. 8d. a gallon in 50-gallon drums. Members of the Automobile Association have the privilege of hiring such drums at a nominal rent.

PORK IN SUMMER.

DR. GEORGINA F. MALDEN (London, S.W.) writes to suggest that the reason why many people think pork unwholesome in hot weather is the belief that all animals classed as "unclean" in the Old Testament are unsuitable and unwholesome food in a hot country, and therefore in hot weather in any country. "I am not aware," she adds, "that Continental nations have this idea about the 'unclean' animals, but I think the Old Testament is much less familiar to them."

QUININE IN CYESIS.

DR. JOHN MCOSCAR (Buxton) writes: It has been my custom for many years to prescribe quinine in parturient women a month before the expected date of confinement. My prescription is quin. sulph. gr. ss, acid. hydrobrom. dil. ♏ x, aqua chloroformi ad ʒ ss, three times a day after food. In the majority of cases this treatment has been followed by a natural, easy, and rapid confinement, even in primiparae, as quinine is a tonic to the uterus and enables it to do the work it has to do at its allotted time. To me a night's rest is worth considering, as the labour of the next day is gone through with vigour instead of languor. The many now trained midwives can undertake the case, and will give thanks to the medical man in helping them through it.

AN INTERNATIONAL LANGUAGE.

THE Accademia pro Interlingua, which has been in existence for more than a quarter of a century, has made a scientific study of the question of an international language; the trend of opinion among the members seems to be towards the adoption of a simplified form of Latin. The President is Professor G. Peano of the University of Turin.

THE CITY PLANE.

THE plane is one of the few trees which will flourish in a city in spite of all the coal products wasted into the atmosphere. This immunity has commonly been attributed to the habit of the tree to shed its bark annually or at short intervals, thus, as has been supposed, getting rid of the irritating and clogging material. From an article in *Nature* (June 26th, p. 333) it appears that Professor A. Henry, who has given much attention to the subject of the production of vigorous trees, is of opinion that the particular plane commonly called the London plane *(Platanus acerifolia)* grows well and lives long in cities because it is a comparatively recent hybrid, and therefore essentially vigorous. It is believed to be the offspring of a cross between the oriental and the occidental plane; both were imported into England, the one from the east and the other from the west, and it is believed that accidental cross-fertilization occurred, probably towards the end of the seventeenth century, between two trees growing near each other, probably in the botanic garden at Oxford. The seeds of the London plane when sown produce a mixed crop of seedlings, in which the characteristics of the two parents are variously combined. One of these, *P. pyramidalis*, which originated on the continent of Europe about 1850, is now as commonly planted in the streets of towns as the true London plane.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
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An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.